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Occupational HAZARDS

THERE'S PROFIT IN PREVENTION

APRIL
1947

ROUTE TO
YOUR PLANT
E PROTECTION
EN: FEATURE
SECTION ON
E PROTECTION
OR INDUSTRY

THIS INTERNATIONAL MAGAZINE COMES TO YOU WITH THE COMPLIMENTS OF

MINE SAFETY APPLIANCES COMPANY OF CANADA LIMITED

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Kirk & Blum Dust Control System installed at the plant of Geneva Forge, Inc. (Division of Ekco Products Co.) Geneva, N. Y.

KIRK & BLUM ENGINEERS

solve Dust Disposal Problem

The dust collecting system in use at Geneva Forge, Inc. removed dust from production equipment, but permitted too much of the light dust to escape into the outside air.

To solve this problem, Kirk & Blum Engineers designed and installed a Combination Dust Arrester—Cyclone Unit. Heavy dust is collected and deposited in a storage bin by the primary separator. The light dust, passes through the Arrester Unit and is filtered before the air is expelled into the atmosphere.

The Combination Cyclone—Arrester Unit installed at Geneva Forge, Inc. is considered by engineers to be the most efficient system available to industry. It is complete with a storage bin provided with hopper unloading gates permitting trucks to load automatically and dispose of the dust.

You may have a similar dust problem—or perhaps a quite different one, depending upon the nature of your production. Whatever your needs, your best assurance of complete dust control satisfaction lies in the skill and specialized experience of Kirk & Blum Engineers. Write today for details.

THE KIRK & BLUM MANUFACTURING COMPANY

2302 Spring Grove Ave., Cincinnati 25, Ohio

ENGINEERING SPECIALISTS IN DUST AND FUME CONTROL

KIRK AND BLUM

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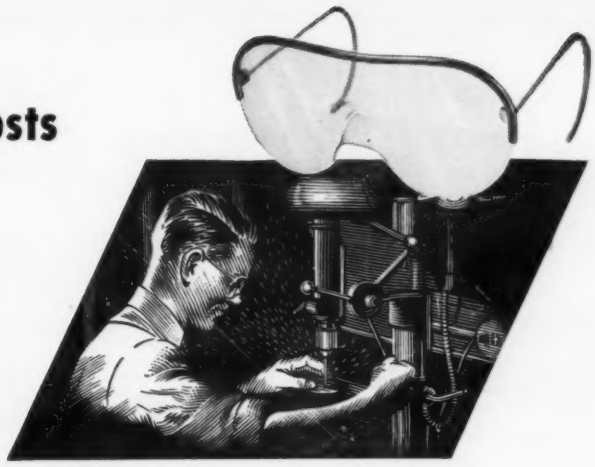
Get WILLSON...

to Change Accident Costs into Safety Savings



PROTECTION IN 9/10 OF AN OUNCE . . . Day long comfort with the FeatherSpec*. Large, clear or WILLSON Tru-Hue green, plastic lens gives wide, unobstructed vision.

MOLDED TO FIT A THOUSAND EYES . . . Mirror-smooth rolled edges of the plastic eye cups conform to the contours of the eye cavities for snug, comfortable fit on hazardous jobs. With Super-Tough* lenses.

ALL 'ROUND PROTECTION—ALL 'ROUND COMFORT . . . Metal fumes; chromic acid mists; all dusts—excluded by dual, easy breathing filters and snug fitting facepiece.

For complete information on these products and their application, as well as many more eye and respiratory protective devices, get in touch with your nearest Willson distributor or write us direct.

GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

DOUBLE WILLSON

*Trade Mark

PRODUCTS, INCORPORATED

READING, PA., U.S.A. *Established 1870*

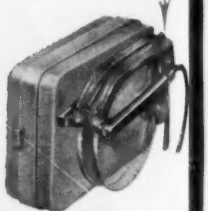
209 WASHINGTON STREET, READING, PA., U. S. A.

NOW...fit shatterproof Plastic Eye Protection to the job!

They fold

STO AWAYS

wherever spectacle-type protection is sufficient. A revolutionary new type of impact-resisting spectacles that FOLD to cigarette-pack size.



eye SAVERS

T. M. REG.

where all-round protection is required against eye-injury from any angle. Eye Savers fit over prescription glasses.

Both styles built to highest optical standards. Replaceable Impax plastic lenses minimize maintenance costs and are especially resistant to high-velocity impacts that cause most industrial eye injuries. Proved by industry...worn constantly where workers have resisted goggles before. Build your eye-protection program around this efficient plastics team and watch your eye-injury record drop. Call your Eye Savers dealer today, or write:*

WATCHEMOKET OPTICAL CO., Inc., Providence 3, Rhode Island

*T. M. REG.

In Canada: Levitt Safety Appliances Co., Toronto 12, Ont.
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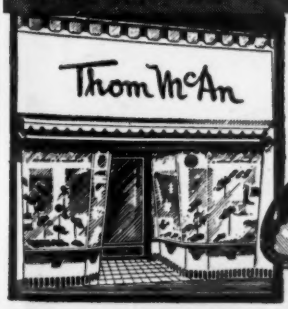
One Way To Do It! — by Rube Goldberg

PREVENTING LOSS OF EYEGLASSES

WHEN SEEKING YOUR GLASSES, FEEL WAY AROUND UNTIL HANDS **(A)** *TILT MOOSE HEAD* **(B)** *CAUSING ANTLERS* **(C)** *TO KNOCK OVER PINE-APPLE* **(D)** *LIFTING TOP OFF BIRD-CAGE* **(E)**. *CANARY* **(F)** *LUNGES AT BIRDSEED* **(G)** *ROCKING ARM* **(H)** *AND RINGING BELL* **(I)** *GIVING LOCATION OF GLASSES.*

MAKE THIS STORE YOUR SAFETY SHOE DEPT.



More than 500 stores in over 300 cities.

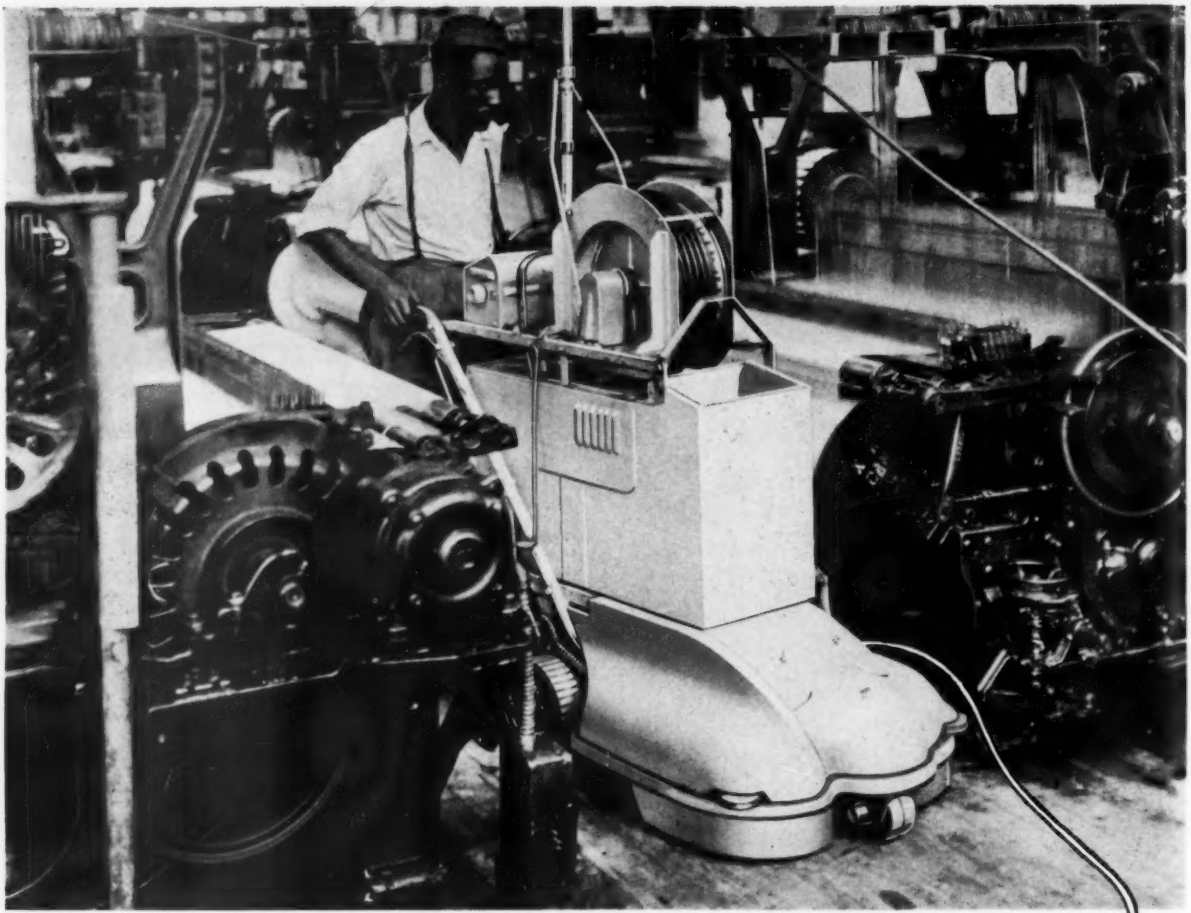
SAFETY SHOE DIVISION
, 25 W. 43 ST., NEW YORK 18, N. Y.

ONE WAY to approach the foot safety problem in your plant is to provide Safety Shoes of some brand that your men don't know—or perhaps don't like.

THE EASY WAY is to select Thom McAns, "the Safety Shoes that workers wear WILLINGLY"—because they already know and trust the Thom McAn name *

THE EASIEST WAY OF ALL—"LET Thom DO IT"
Let us stock our Safety Shoes for you in our own Thom McAn retail stores, fit them with our own trained fitters, without cost or obligation on your part. You, freed of "shoe store problems," can concentrate on more important things, make yourself a more valuable man. Proof? Details? Write for them—today.

*MORE MEN buy their shoes from Thom McAn than from ANY OTHER shoe store organization IN AMERICA



To Solve YOUR Floor-Cleaning Problem

CHOOSE *A Job-Fitted Finnell!*

Since individual floor-cleaning problems differ widely, no one machine can serve the needs of all industries effectually and economically. The area and arrangement of the floors, whether congested or open, type of flooring and production — these determine the equipment. Recognizing that fact, and guided by four decades of practical experience in developing and manufacturing floor-maintenance machines, *Finnell* offers *more than a score* of models and sizes. From this complete line, it is possible to choose *job-fitted* equipment—equipment that fits the need in size as well as model. A *Job-Fitted Finnell* provides the greatest brush coverage consistent with area and arrangement of the floors and other conditions—whether the job calls for wet scrubbing, dry scrubbing, or dry cleaning . . . or for waxing or polishing.

One of MORE THAN A SCORE . . . of Models and Sizes . . . Each Designed to Meet Specific Needs

The *Finnell* illustrated, a *Self-Propelled Scrubber-Vacuum,* is a complete cleaning unit *all in one.* It applies the cleaning solution (or scouring powder), scrubs, rinses if required, and picks up. Has a cleaning capacity up to 8,750 sq. ft. per hour! For consultation, free floor survey, or literature, phone or write nearest *Finnell* branch or Finnell System, Inc., 3504 East Street, Elkhart, Indiana. Canadian Office: Ottawa, Ontario.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Occupational HAZARDS

VOLUME 9 • NO. 6

CONTENTS FOR APRIL, 1947

GOOD HOUSEKEEPING ISSUE

COVER: Adequate lighting and easy maintenance are provided at the Kelsey-Hayes Wheel Company, Detroit, by this installation of two-lamp reflector units. Employing 100-watt lamps mounted at 15 feet they are spaced at 10-foot x 13-foot, four inches, and furnish opportunity for easy replacement and cleaning. (General Electric Photo)

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JACKSON EYESHIELDS

to Protect Eyes and Face for Industrial SAFETY

Type BX

PATENTED

For All Gas Welding, Cutting and Brazing. Our present model has been improved in many respects.

Headgear and Cross Strap over top of head are made entirely of extruded plastic. They are moisture proof, will not shrink or warp, and may be thoroughly sterilized.

Multiple adjustment gives exact and lasting fit.

Leather *Sweat Band* gives added comfort.

Skull Cap of fireproof duck available at small extra cost. New *Headgear Pivot Assembly* is semi-permanent. Tension is locked in at the factory. No washers and nuts to back off and get lost.

Sturdy *Side Protectors* hold pivoted *Lens Retainer*, made of durable opaque molded plastic. Standard 2″ x 4⅛″ *Lenses* are held securely in place, yet are easily replaced. Available in F.S. shades from 3 through 6. Please specify shade desired.

Type J-1

For Metal Finishing, Metal Pouring, Spot, Gun, and Flash Welding, Wood Working, etc.

Present model has vastly improved *Headgear* made of extruded plastic. *Sweat Band* and *Pivot Assembly* same as described above for Type BX.

Improved plastic coated *Spark Deflector* protects the forehead.

Visor is made of fire repellent, flexible, clear Plastascele in three thicknesses: .020″, .030″ and .040″. Also in three shades of green: light, medium and dark in the .020″ thickness only. All are available in three depths: 4, 6 and 8 inches. Please specify when ordering.

All visors are 11 inches wide for "all around" protection.

All visors have a wire-reinforced gimp binding. Wire reinforcemen enables user to mold shield to his requirements.

Visor is attached to the outside of the Spark Deflector to withstand greater impact. Distance of visor from face is adjustable.

HEADREST SPECTACLES

LTB-50

For Light Welding, Cutting, and Brazing Operations

These spectacles are intended for general use where complete eye covering is unnecessary. They take 50 mm. lenses, shades No. 3 to No. 8.

All-plastic in design, yet of rugged construction, the headrest evenly distributes the weight over the entire head, thus relieving the usual pressure on the nose and face.

"LTB-50" can be comfortably worn over prescription glasses and is easily adjusted to fit any head . . . Distance between spectacles and eyes is also adjustable . . . All-round ventilation prevents fogging—provides greatly improved visibility.

Weldor can easily lift spectacles to "up" position, inspect his work, check his equipment. Then, with a flip of the finger, the spectacles are reset and "on guard."

Ask your Jackson dealer, or write to us . . .

JACKSON PRODUCTS

31739 Mound Road, Warren, Michigan

PROTECTION

WHERE NEEDED

H-711 — Men's Brown Glove Moccasin Oxford, Leather Sole, Half Rubber Heel.

Insure Workers Feet In Sure Protection with HY-TEST Safety Shoes

ANCHOR FLANGE STEEL BOX TOE

This flange adds extra strength to the steel arch's sidewall. Anchored between insole and outsole, it also serves to resist shifting, tilting and cutting through outsole under impact.

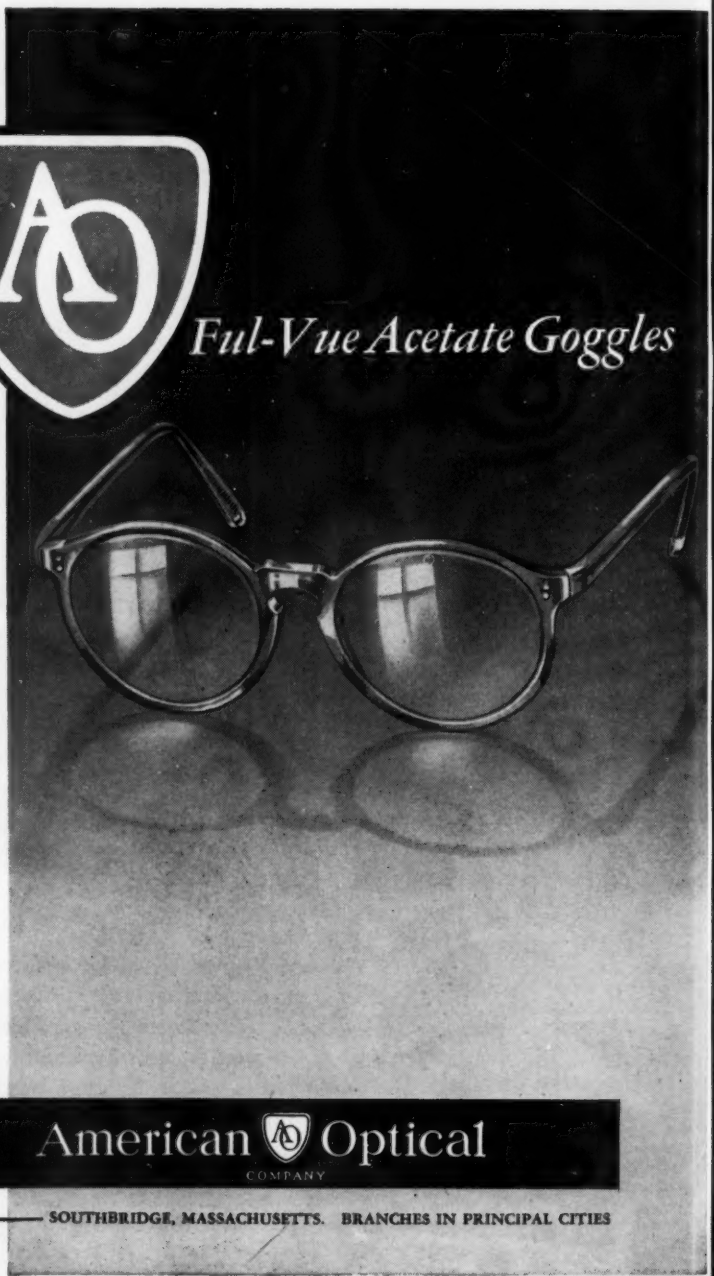
Knights of production lines use modern armor — Hy-Test's Anchor-Flange Steel Box Toes. This armor of steel is built into sturdy leathers to ward off blows that injure toes. And Hy-Test Safety Shoes are a pleasure to wear. They have the new Slant-eze tops and many other comfort features. They're all leather in vital parts... strongly built and styled along neat dressy lines. Sizes are 5 to 15 in widths AA to EEE. It's easy for your workers to have them. Let us tell you how.

HY-TEST SAFETY SHOES

HY-TEST Safety Shoes THE WORLD'S LARGEST SELLING SAFETY SHOE

HY-TEST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MO. • EASTERN OFFICE • MANCHESTER, N. H.

New... *Ful-Vue Acetate Goggles*



... for Lightweight, Good Looking Protection!

Sturdiness and smartness see "eye-to-eye" in these new spectacle goggles by AO. They provide assured protection with better feel, fit and comfort. You will appreciate the comfort of the strong but lightweight new keyhole bridge, face-formed for wearing ease . . . the nose pads which evenly distribute goggle weight. Ful-Vue advantages include lenses that conform to and cover eye orbit for maximum vision and safety . . . high set end pieces that take hinges and temples out of line of sight. Available in 5 bridge sizes, with clear lenses for machine, hand tool and laboratory work — or with Calobar lenses to combat glare, heat, ultra-violet and infra-red hazards. Your nearest MSA Representative can supply you.

American Optical
COMPANY

Safety Division

SOUTHBRIDGE, MASSACHUSETTS. BRANCHES IN PRINCIPAL CITIES

ARE YOUR WORKERS WASHING WITH *FIRE?*

Of all the precious assets your plant possesses, none is more important than the hands of your workers! And dangerous undesirables in any worker's washroom are "fiery" hand cleaners whose strong alkaline or harshly abrasive action tends to irritate or injure the skin's surface, making it more susceptible to infection.

In many instances, authorities say: "Harsh skin cleansers have frequently been found to be the actual causes of occupational dermatitis which before investigation seemed to have been caused by the chemicals manufactured or handled."

West Sulpho Hand Cleaner—a liquid skin cleanser made of sulphonated vegetable oil—is one of your best safeguards against this condition.

Neither dangerously high nor ineffectually low, Sulpho's pH is ideally neutral; its emulsive action gentle, not grinding.

An aid in cutting down costly absenteeism, Sulpho is designed to *get out* soil, grease and grime *without harming or defatting sensitive dry skin.*

Sulpho is one of hundreds of products developed by West for the promotion of effective sanitation. Consult with one of a nationwide staff of over 475 experienced West representatives.

WEST DISINFECTING Company

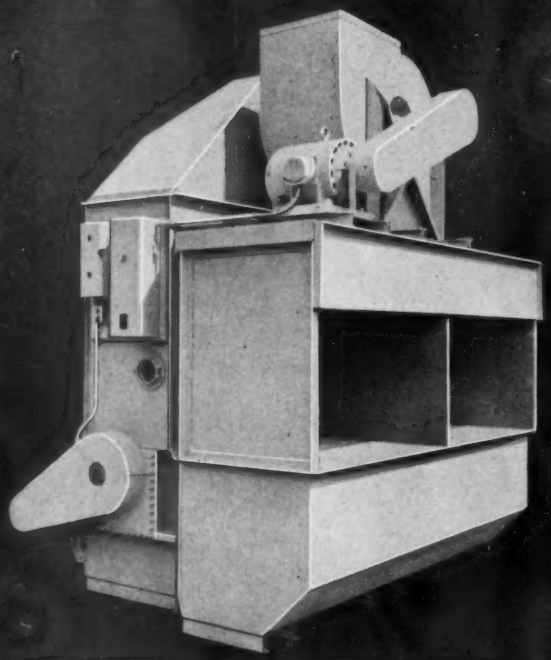
Products That Promote Sanitation

42-16 West Street, Long Island City 1, New York, N. Y.

BRANCHES IN PRINCIPAL CITIES OF UNITED STATES AND CANADA

CLEANSING DISINFECTANTS • INSECTICIDES • KOTEX VENDING MACHINES
PAPER TOWELS • AUTOMATIC DEODORIZING APPLIANCES • LIQUID SOAPS

SAFETY!



with Hydro-Whirl wet type MAGNESIUM Dust Collectors

Pictured above is a 2-compartment Magnesium Grinding Booth. One of 16 in operation in a single plant.

MAIL COUPON TODAY

Peters-Dalton has PIONEERED the development of safe and efficient means of collecting magnesium dusts.

Booths for flexishaft operations can be provided whether material is handled by truck, crane or by hand.

We will be pleased to mail a thorough instruction manual on the collection and control of dust and fumes from magnesium alloy processing.

HYDRO-WHIRL

PETERS-DALTON, INC.
17900 Ryan Road, Detroit 12, Mich.

☐ Kindly mail copy of "Hydro-Whirl Dust Collectors"

Name_____

Position_____ Company_____

Address_____

PETERS-DALTON Incorporated

17904 RYAN ROAD • DETROIT 12, MICHIGAN

HYDRO-WHIRL DUST COLLECTORS AND SPRAY BOOTHS—INDUSTRIAL OVENS, WASHERS AND VENTILATING SYSTEMS

IF YOUR eye safety program is designed only to protect workers' eyes, you may be missing the *big half* of a complete visual safety program. Industrial studies show that at least half of all workers need eyesight correction. Industrial eyewear, incorporating correction professionally prescribed for the requirements of every job, prevents "I-didn't-see" accidents (and increases worker productivity.) Your Bausch & Lomb distributor offers prescription service on industrial eyewear—visual *protection* and *correction* for your workers.

SAFETY FACT-FINDING CASE HISTORY. . .

BEFORE Ortho-Rater Visual Performance Standards

AFTER Ortho-Rater Visual Performance Standards

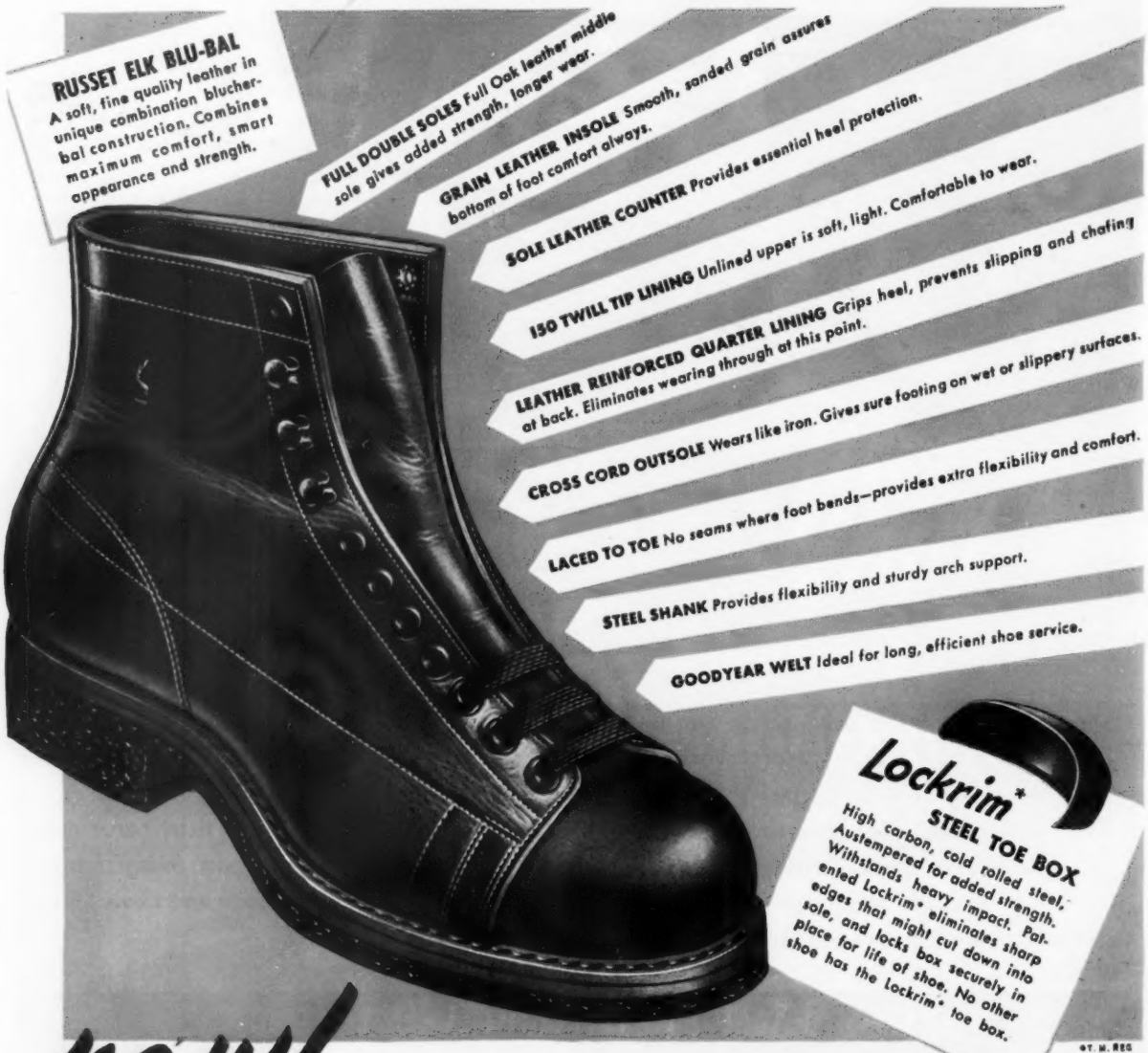
40% SAVING

This is the actual record of one department of a Bausch & Lomb Industrial (Occupational) Vision Service subscriber. The feature of this service is the Ortho-Rater system of visual performance measurement and the corollary fact-finding system as a basis for visual standards. In addition to improving safety records, the Industrial Vision Service contributes to increased production, improved quality, reduced labor turnover, and lower training costs.

Write for descriptive bulletin.

BAUSCH & LOMB

OPTICAL COMPANY ROCHESTER 2, N. Y.


RUSSET ELK BLU-BAL
A soft, fine quality leather in unique combination blucher-bal construction. Combines maximum comfort, smart appearance and strength.
FULL DOUBLE SOLES Full Oak leather middle sole gives added strength, longer wear.
GRAIN LEATHER INSOLE Smooth, sanded grain assures bottom of foot comfort always.
SOLE LEATHER COUNTER Provides essential heel protection.
150 TWILL TIP LINING Unlined upper is soft, light. Comfortable to wear.
LEATHER REINFORCED QUARTER LINING Grips heel, prevents slipping and chafing at back. Eliminates wearing through at this point.
CROSS CORD OUTSOLE Wears like iron. Gives sure footing on wet or slippery surfaces.
LACED TO TOE No seams where foot bends—provides extra flexibility and comfort.
STEEL SHANK Provides flexibility and sturdy arch support.
GOODYEAR WELT Ideal for long, efficient shoe service.
Lockrim*
STEEL TOE BOX
High carbon, cold rolled steel, Austempered for added strength. Withstands heavy impact. Patented Lockrim* eliminates sharp edges that might cut down into sole, and locks box securely in place for life of shoe. No other shoe has the Lockrim* toe box.
PAT. M. REG.

new! LEHIGH'S ATHLETIC-TYPE SAFETY WORK SHOE

Here is an important new kind of safety shoe construction. Designed like an athlete's shoe, it offers greater flexibility, comfort and safety for fast-moving, active feet. No seams to pinch or bind where the foot bends. Soft, lightweight, unlined upper reduces weight and clumsiness—gives plenty of rugged wear. Long-wearing cross cord sole provides maximum traction on wet or slippery surfaces. And built into this easy-action work shoe is the famous Lehigh Lockrim* steel toe box. This new safety shoe does *double* duty on the job—actually helps *prevent* accidents because it's so light and limber...and protects feet and toes against injury. Send for a sample pair and prices today, or wire, phone or write to have a Lehigh representative call.

MEDIUM LAST • stock no. 1310

note: Available in widths D and E, sizes 5 to 13. Available soon—#1311. Same pattern as #1310 (above). Black elk upper with Chrotan leather outsole and half rubber heel.

LEHIGH ALLENTOWN, PA.

SAFETY SHOE COMPANY

Division of The ENDICOTT JOHNSON Corporation

WESTERN OFFICE: 12th AND SPRUCE, ST. LOUIS 2 MO.

MEN AND MATTERS

News • Activities • Plans

EXHAUST CODE REVIEWED . . . The Industrial Hygiene Engineering Advisory Committee, organized by the Division of Labor Standards, U. S. Department of Labor, met in Washington, D. C., recently to complete the final recommended draft of the International Labor Office Exhaust Ventilation Code.

The establishment of this standard code is especially timely in view of the increased interest evidenced by State Labor Departments and other State code authorities in the revision of their exhaust ventilation codes.

The preliminary draft of this code with recommendations will be sent to the States for their use as a reference and guide in the preparation or revision of their codes.

PLASTIC GOGGLE TEST . . . A demonstration in which a pair of clear plastic safety goggles withstood the impact of a sharp piece of

steel flying at a speed of 240 miles per hour was held recently at the factory of the U. S. Safety Service Company, Kansas City, Mo. Witnessed by members of the Division of Labor Standards of the Department of Labor, tests were also held to demonstrate the optical qualities of plastic goggles. The demonstrations were part of a conference conducted in co-operation with the Missouri State Division of Industrial Inspections. The goggles tested were SAF-I-SHIELDS, a product of the U. S. Safety Service plant.

SAFETY BULLETIN BOARD . . . Walter K. Farst, General Manager of the Columbia Cement Division of the Pittsburgh Plate Glass Company, has designed a new safety bulletin board recently installed in the cement plant at Zanesville, Ohio.

The sign, which has an overall height of eight feet, is placed at the

entrance of the time card office where all employees pass at least twice daily. The top part of the sign is a metal box showing the number of days without a lost time accident. These numbers are painted on a pane of glass, which is removable, and is changed daily. Behind these numerals green and white lights inside of the box alternately flash on and off. Each day a new safety slogan is painted on the mirror with water colors. Pictures of accidents and near accidents with full details are also posted on this mirror giving causes and telling how they might be prevented with safety measures. Employee interest in the sign runs high.

OCCUPATIONAL THERAPY . . . Copies of an illustrated booklet, "Occupational Therapy, A Pioneering Profession," have just come off the press and are being distributed by the American Occupational Therapy Association, New York, to interested health officials, rehabilitation agencies and industrialists. A move has been launched to build up the ranks of trained occupational therapists with new recruits.

HIGH TEMPERATURE WARNING . . . Bailey Meter Company, Cleveland, announces that the newly commissioned cruiser, U.S.S. Toledo, has been equipped with the company's Superheater Protective Device. This electronic instrument measures both pressure and temperature, and sounds warning horn when superheater outlet temperatures become too high. It also warns firemen when steam flow through the superheater becomes dangerously low.

ATOMIC BOMB SAFETY AWARD . . . J. H. Specht, a field-force superintendent of the Rust Co., Pittsburgh, received the safety award of E. I. duPont deNemours and Company for completing 14 reinforced concrete chimneys, ranging up to 300 feet high, without a lost time accident in connection with construction work on the Atomic Bomb project. This safety record was maintained during 57,000 man-hours of hazardous construction at Hanford, Washington.

REVISED STANDARDS LIST . . . A list of 864 standards approved for national use of industry by the American Standards Association is now available to interested trade. technical and governmental bodies without charge. The revised list of standards include many of those developed under war procedure and now approved for peace-time use.

ATHLETE'S FOOT SAGA . . . The Marshall Island natives used to be a tough and healthy people. They wore no clothes. They got lots of sun and air. They bathed often in the sea and their bodies were washed frequently by sudden tropical rains.

Then came the missionaries. They convinced the natives that their nakedness was sinful. So the natives clothed themselves, the women in long Mother Hubbards, the men in shirts and pants. They wore their clothes night and day, often damp from the sudden rains. They bathed less in the sea, being ashamed of their nakedness. And their skin got no more sun and air.

What happened? Skin diseases came, eczema, scabies and fungus infections. So did pulmonary and res-

(*Turn to Page* 23)

RATS MOVE OUT . . .

When Good Housekeeping Moves In

Rats cost you money! Persistent, destructive despoilers every day in the year, they cause needless waste in industry. The problem cannot be overlooked either from an economic or health standpoint. Experience shows that good plant housekeeping is the cheapest form of "insurance" against them.

INDUSTRIAL plants are often confronted with problems of rat infestation, and their large and complex building areas often make the control difficult and expensive. The rat scourge costs the nation $200,000,000 a year in property losses, plus costs incurred by sickness and disease spread by rat hordes. The savings that can be entailed through the carrying on of successful rat control programs are over and above the gains in employee morale that invariably follow the program. And logically enough, the least expensive form of protection lies in a program aimed at elimination of rat harborage through good housekeeping and ratproofing of the industrial premises.

Besides being responsible for annual industrial property damage running into millions of dollars, rats are a number one health hazard to employees. These pests are spreaders of eight known diseases that can be contracted by workers, including plague, typhus fever, spirochetal jaundice, rat bite fever, rabies, tularemia and food poisoning. They are also carriers of 18 kinds of fleas, lice, mites and 11 kinds of intestinal parasites.

Not only do rats destroy perishable industrial materials, but also clothing, fabrics of all kinds, pulp and papers, using these materials to build their nests. Fires are also frequently started by rats while gnawing matches or electric wires in search of food or nesting materials.

Rats Travel for Food

Rats are typical travelers, drifting from place to place establishing themselves wherever food and harborage are available. When once established they multiply rapidly. They have 3 to 12 litters a year, the average being reported as five. The young rats start breeding when they are three months old, and their litters consist of as many as 22 offspring with nine being the average. The period of gestation is from 21 to 22 days. Females are ready to mate within a few hours after delivery.

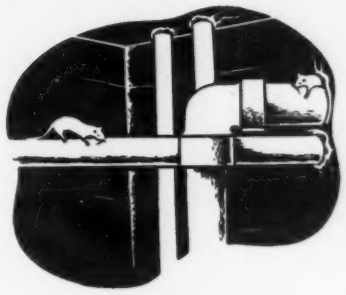
These facts put together as simple arithmetic will demonstrate what may happen if even one pair of rats are allowed to become established. Using only the conservative averages and assuming one-half are females, over 6,700 offspring are possible at the end of one year!

In the control of rats; food sources of any kind must be kept from them as completely as possible, and all harbors and breeding places must be eliminated. The following measures contribute greatly to good anti-rat plant housekeeping practice: 1. Close all outside openings in

4T

buildings and block all spaces between studs at each floor and at the eaves. Close with metal flashing or cement all openings in floors or partitions made for pasage of pipes. This is especially important in basements of buildings.

2. Where double walls are necessary, a 12 inch strip of hardware cloth of ½-inch mesh should be placed under the wall covering both inside and outside face of the exterior wall studs, at the floor level. False partitions, boxed columns, raised wooden floors in toilets and boxed-in wooden lower shelves of cabinets and workbenches provide excellent harbors for rats and should be removed.
3. Where there are cement floors, install a cement foundation extending 18 inches into the ground and around the total perimeter of the cement floor of the building. Where wooden floors exist close to the ground without a foundation wall, either remove these floors or raise building 18 inches off the ground. It is often possible, where floors are in good condition and contain no large holes or cracks, to install a cement wall around the building extending 18 inches into the ground.
4. Rats may hide and nest behind barrels, boxes, crates, sacks and lumber, especially in the vicinity of food. Particular attention should be given to the removal of debris around sheds, outbuildings, steps, lumber storage piles and loading docks. Bottoms of elevator shafts should be concreted.



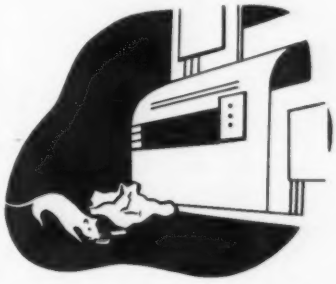
Provide metal or brick bins for temporary storage of waste materials.

5. Skylight and ventilator ducts and air conditioning trunk lines provide open runways for rats. Block off all openings with maximum ½-inch mesh hardware cloth.
6. A serious problem where plants operate "around-the-clock" is the practice of employees eating meals at machines. This practice distributes food scraps throughout the building and may result in unsanitary accumulations in corners, beneath equipment or furniture. All discarded food or garbage kept within the building should be stored in well covered metal containers. The best solution is to have one room set aside for a central eating place.

It is far better to prevent an original infestation by following these suggestions than to try to eradicate the rodents after they have become established on the premises. If they are present, however, they can be eliminated by perseverance. Both gassing and trapping help a great deal, but it requires a considerable degree of skill and expertness to do either effectively, and gassing is dangerous if done by an inexperienced operator.

There are many poisons which may be used; but fortified Red Squill mixed with bait (one part to nine parts bait) is reported most effective. By experiment 1:2 to 1:4 grams of fortified Red Squill per adult rat will kill 60% of the males within 72 hours. Females are more susceptible than males. This product is not dangerously toxic to domestic animals or human beings when it is used in proportions referred to above.

Where industrial plants want to employ outside professional help in eliminating their rat problems they may hire the services of commercial pest control operators. These organizations, located in practically every community, offer practical, scientific experience and facilities for rat ex-



termination and offer efficient eradication methods in the warfare against destruction caused by rodents.

Halfway or spasmodic measures will not work against aggressive creatures like rats. To put forth half-hearted efforts or to hope that these rodents will be satisfied to remain where they are, is only to indulge in wishful thinking. When control measures of rat-proofing, gassing and trapping are applied systematically and thoroughly, any plant area can be made free from rats—at least temporarily. However, ratproofing buildings and removing food, shelter and water from the rat, through proper plant housekeeping, will cause rats to move out—permanently.

The surest way to permanent riddance of rats is removal of unfavorable harboring places such as shown here and in the unkept loading dock and steps littered with debris above. Rats will not remain where safe and comfortable shelter is not available.

Left: A specific maintenance operation and a specially assigned job requiring the full time of one man in the Sheeting Division is the oiling of overhead shafting. Right: This three-man crew is part of the mechanical scrubbing machine contingent which cleans 154,000 square feet of floor each week. One man operates the machine, another the water, and the third mops excess water as added safety precaution.

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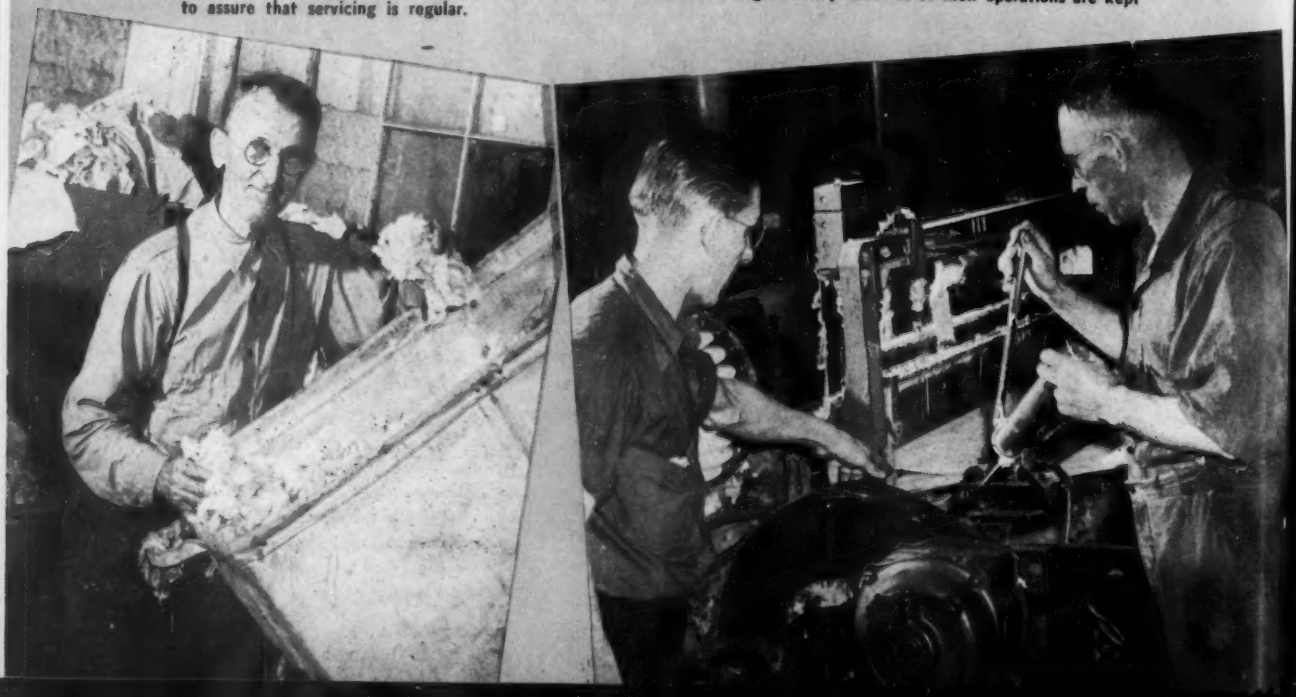
Pepperell Pattern

Reducing fire and health hazards by regular cleaning and maintenance hits the spotlight in this month's Plant Picture Story.

THE continual task of plant housekeeping at the Biddeford, Maine, Mill of the Pepperell Manufacturing Company is an enterprise dedicated to reducing health, safety and fire hazards to a minimum, and one of the chief factors in that accomplishment is the maintenance of superior methods of cleaning and lubricating mill machinery.

Left: Gathering waste from rooms throughout the mill constitutes a housekeeping as well as a salvage function. The regular removal of waste safeguards against possible fire hazards from static electricity sources. Right: Loom oilers make daily rounds to keep the fabric weaving machines working smoothly. Records of their operations are kept to assure that servicing is regular.



FILE B-101

TECHNICAL FILE ON INDUSTRIAL DUST HAZARDS

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

B101. DEFINING TERMS. "Matter in the wrong place" is the familiar definition of dust given by laymen. In industry dust can be classed according to its kind and concentration as (1.) Atmospheric pollution and (2.) Industrial process dust.

B102. ATMOSPHERIC DUST. Not dense enough usually to be either visible or directly harmful, atmospheric dust is common to every building and habitation. It is annoying especially in industrial districts, where smokestack discharges, street traffic, locomotives and other external activities add to natural dust sources. Essentially a mixture, atmospheric dust contains sand, soot, ashes, metals, chemicals, fibers, animal or plant matter, disintegrated matter, etc. It can be classed as a health hazard mainly because it also contains pollen, spores and bacteria. Dust particles in the atmosphere range in size from the visible cinder to the microscopic particle so small that the head of an ordinary pin would barely be covered with an accumulation of several millions. No air, outside of the experimental laboratory, is entirely free from atmospheric dust. The most industry can hope to accomplish is to see that working conditions are clean enough to be safe for the average person's disease resistance.

B103. INDUSTRIAL PROCESS DUST. This is dust generated and released by manufacturing processes. Concentrations are usually heavy enough to be visible as a cloud, especially around such operations as grinding, mixing, crushing, etc. The control of such dust is essential to industry, not alone for the sake of protecting manpower from health hazards, but for the protection of high-speed production methods, dust-sensitive processes and products.

B104. DUST EVALUATION. A plant process dust generally is peculiar to one or allied industrial operations that generate dust particles varying greatly in size. Seen in the workroom air as a cloud, or as fumes, the concentration is many thousand times that of atmospheric dusts. Process dust particles that can be seen individually, even under ideal conditions of visibility, exceed 10 microns in size, a micron being about 1/25,000th of an inch. The visible particles are more of a nuisance than a hazard. Particles smaller than 10 microns, especially if of siliceous or fibrous substances such as quartz and asbestos, are especially hazardous in heavy concentrations. The dust usually is formed in the industrial reduction of solid materials to small sizes.

B105. DUST COMPOSITION. Industrial dust material can be inorganic, like rock, or organic, like grain dust. In such processes as grinding, crushing, drilling or blasting, the composition of the particles produced is usually the same as that of the original material, although frequently the percentage of some hard mineral (such as quartz) in the fine dust may be less than in the parent material.

B106. DROPLETS. Some process dusts may contain droplets, as well as dry particles, as in the case of smoke from burning coal, oil, wood, peat or other organic materials. By comparison, if a barely visible dust particle (about 10 microns) were enlarged to the size of an ordinary billiard ball, a ¼ micron tobacco-smoke particle would resemble a B.B. shot in size.

B107. FUMES. Plant process fumes are generally the result of a conversion of metals into the liquid state and they represent suspended particles that have gone back directly to the solid form. Two very familiar examples of hazardous fumes are: (1) the zinc vapors arising from the vats of molten brass in foundries, a condition in which zinc oxide particles are in fume suspension, and (2) exhaust smoke of an automobile burning anti-knock, tetraethyl lead gasoline, in which the fumes are composed of lead particles in suspension.

B108. DUST PARTICLE DANGERS. Industrial dust may have various harmful reactions on the body. In the order of relative harm, process dusts are dangers when inhaled, swallowed or absorbed through the skin. The continued inhaling of inorganic quartz and asbestos dusts may result in specific lung reactions (silicosis and asbestosis respectively.) The breathing in of inorganic metal dusts, such as zinc oxide, can cause metal fume fever.

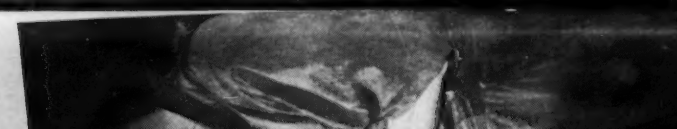
Inhaling *inert* dusts, like coal, emery, limestone, marble, etc., weakens the respiratory system defenses and reduces resistance to infections like bronchitis and tuberculosis.

The inhaling, swallowing or skin-absorption of inorganic *toxic* (poisonous) dusts, such as lead, radium, manganese, cadmium and mercury compounds, can cause severe poisoning of the circulatory system, as well as local membrane irritations.

Inorganic *irritant* dusts, such as lime and compounds of chromium, can cause corrosion or ulceration of the skin, nose or throat membranes.

Organic dusts, like wool, cotton, pollen, grain, flour, etc., can cause specific reactions of an allergic nature. Asthma and hayfever are examples. Organic dusts of a toxic and / or irritant nature cause skin damage as well as frequently irreparable eye, ear, respiratory or circulatory damage. Examples are powdered dyes, sugar dust, tobacco dust, cereals, explosives, methyl violet dusts, etc.

Infected dusts, through inhalation, swallowing or skin-absorption, lead to bacterial disease in workers, causing such varied dangerous infections as anthrax, tetanus, diphtheria, tuberculosis, smallpox, typhoid, pneumonia and the allergies.



TECHNICAL FILE ON INDUSTRIAL DUST HAZARDS

SAVE THIS VALUABLE REFERENCE MATERIAL: BUILD UP A PERMANENT OFFICE FILE

B109. DUST PARTICLE SIZE AS A FACTOR. Individual dust particles small enough to reach lung tissues cannot be seen without a microscope. Except for fibrous materials, like asbestos, dust particles must be smaller than 10 microns at their biggest point in order to damage lung tissues seriously. The hardness or jagged edges of a dust particle, like quartz, are much less important than the size. Particles of the toxic metallic dusts, or of the skin-membrane irritants, are dangerous in any contact size.

The allergic varieties of such dust diseases as hay fever, which are due to organic dusts or to larger particles of inorganic dusts, frequently have their source of irritation with the nose, without any affection of the lungs. The pollen of ragweed averages 18 to 25 microns in diameter, a dimension still not readily visible. Practically speaking, the normal person does not discern any object whose dimension is less than 50 microns, even though under ideal conditions the figure is set nearer to 10 microns. Visibility is increased when the dust particle reflects a bright light ray.

B110. DUST PARTICLE SETTLING. If the workroom air is without movement, particles of dust will *fall* in proportion to their size and shape. The smallest settle last. Excluding the toxic dusts (lead, dyes, etc.) the most harmful particles are those between ½ and 3 microns in diameter, while those above 10 microns are generally not harmful. A slight air current is enough to keep the smaller, more injurious particles in suspension indefinitely, while those larger than 5 microns will not remain in the air very long. The smallest ones travel farthest from their source, resulting in a possible hazard a considerable distance from their point of origin. The size of the usual particle found in the lungs of men affected by silicosis is one micron.

B111. GENERAL HARMFUL PROPERTIES. Exclusive of the concentration factor, it is the chemical or mineralogical property of a dust particle which determines its capacity to do harm. For example, free silica in the form of quartz is a notorious producer of an incurable fibrosis (tissue-scarring) of the lungs, while emery has no such effect although it is just as sharp and hard in particle form.

In classifying dusts according to their effect on body cells, the following groupings are arrived at:

1. Absorptive—dusts that are absorbed by the body or disappear without any noticeable damage, like gypsum, limestone, etc.

2. Toxic and proliferative—dusts that destroy cells and / or cause tissue-scarring of the lungs. Examples are lead, mercury, arsenic, quartz, etc.

3. Inert—dusts that remain inert in the body tissues, neither being absorbed nor exerting toxic action. Examples are coal dust, carborundum, soapstone, etc., materials that are merely associated with a pigmentation or coloring of the cells that they reach, or act to reduce respiratory system efficiency.

B112. GENERAL CLASSIFICATION. Harmful dusts can be classified in one or another of the following two groups:

1. Inorganic dusts. Quartz, ores, metals, dry chemicals, etc., can be irritant and / or toxic as dust exposures. In the relatively *insoluble* dusts like quartz, the danger is usually expected in the respiratory passages, particularly the lungs, where irritated cells harden and permanently thicken. Some inorganic, insoluble dusts, such as coal, soot, metal filinfis, etc., are *inert* and do not irritate cells. The body waste system absorbs what it can and the excess remains in the respiratory tissues as a deposit. Such deposits may lower the resistance of the respiratory cells to bacterial and other infections. If the dust is *soluble* (like certain arsenic, lead and mercury compounds), then any absorption of the dust through the skin, throat or lungs may not only cause local irritation but deeper systemic poisoning as well.

2. Organic dusts. These are dusts and fibers of substances produced from living organisms. Examples are the dusts arising from the handling or processing of hides, leather, fur, skins, woods, brooms, straw, hemp, linen, cotton, wool, felt, worsted, rags, paper, tobacco, horsehair, carpets, etc. Such dusts can be irritant, toxic, or carry infectious agents like bacteria and mold-spores. Certain infected dusts induce such diseases as anthrax, tuberculosis, typhoid, diphtheria, etc. The general run are responsible for hay fever, eczema, asthma—the allergies.

B113. FREE SILICIA. Free silica, also known as silicon dioxide, is found most commonly as the mineral quartz, but is also found in combination with many rocks and ores. Beach sand, flint, sandstone and gritstone are familiar substances having a high silica content. In its harmful, crystalline state it is identical with quartz.

Some of the industrial uses of free silica in combined or compound form occur in polishes, abrasives, sandblasters, buffers, whetstones, grindstones, in tube mill grinding, wood finishing, in firebrick making, in metallurgical alloys, smelting fluxes, foundry-mold washes, parting sand, chemical linings or filters, chemical compounds, wood-fillers, plain and optical glass manufacture, chemical apparatus making, sand-lime brick, insulation materials for heat and sound.

(To be continued)

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compounds, wood-fillers, plain and optical glass manufacture, chemical apparatus making, sand-lime brick, insulation materials for heat and sound.

(To be continued)

• Safety equipment must be well made, durable, properly designed for wearing comfort, and dependable at all times. Products that are "just good enough" can be real hazards. Likewise, worn-out equipment offers border-line protection.

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MANAGEMENT'S POINT OF VIEW

HERE ARE EIGHT SUGGESTIONS FOR INCREASING PRODUCTION THROUGH

Plant Housekeeping: A FULL TIME JOB

By R. P. BLAKE
U. S. Department of Labor
Division of Labor Standards

GOOD HOUSEKEEPING and orderliness are fundamentals of production management that must be planned for and permanently pushed. It is fine to get a thorough cleanup but unless management accepts the idea of getting at least a reasonable degree of order and system in all operations, conditions will soon again be as before.

The more important details of good housekeeping and order are:

1. Handling, storage and placing of materials, articles and supplies. Satisfactory control requires careful consideration of all factors of tonnage and volume of materials to be handled, the amounts required at the successive steps of the process, allowance of the spaces necessary, and the methods to be used in handling and transporting the materials.

2. Methods of piling materials and articles. Important points are:

a. Height of pile, dependent upon character of material.

b. Strength of support. Allowable floor loads should be posted.

c. Evenness of support and its continued stability.

d. Location: Aisle traffic factors.

e. Piling small articles. Containers suited to the nature of the articles are commonly used.

f. Pipe or other long stock. Suitable racks aid handling.

g. Mechanical aids. The use of strong-arm methods instead of some form of stacker, piler, hoist, or carrier is a common fault.

3. Tool housekeeping. Racks and holders suited to the size and shape of the articles, should be provided for all hand tools, jigs, and such machine fixtures as chucks, cutters, blades, etc. Frequency of use, value of article, the possibility of damage, and the system of maintenance used will determine the location of such racks. Obviously, tools frequently used at a bench or machine should be provided with racks or holders on the bench or at the machine. Wheeled racks holding a set of the tools and parts needed at a given machine or station are helpful.

4. Disposal of scrap and waste. The old way is to let the floor catch the waste and then clean it up from time to time. Competent management however, estimates probable waste in advance and provides suitable means of collecting it as it is produced and disposing of it in the most economical and orderly way possible. An intelligent interest in keeping waste and scrap down helps both safety and profits.

5. Leaks, drips and spillage. Oil pans, splash guards and drip pans can be used to keep oil off floor. Proper means of oiling and good maintenance reduce dripping. Means of handling liquids should take spillage into account. Good construction reduces leaks.

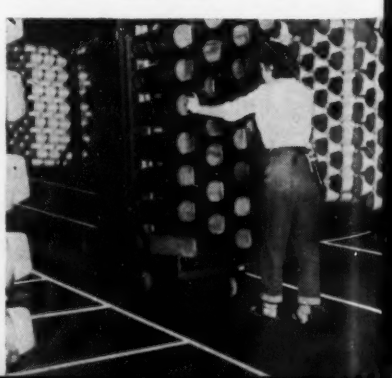
6. Width and layout of aisles. No specific rule can be laid down, though it is well to point out that aisles too narrow for safety are also too narrow for efficiency. Too narrow an aisle is a very common fault. Aisles carrying considerable powered truck traffic should be three feet wider than twice the width of the trucks used.

7. Layout of machinery and equipment. This is, of course, a function of production rather than of housekeeping as such, yet the provision of adequate space and the proper arrangement of the various production units are vital to housekeeping and order.

8. Projecting nails present a serious hazard. Nails left projecting when kegs, barrels or boxes are opened constitute definite invitations to injury. So do nails in planks or boards. Nail punctures are particularly likely to become infected often by tetanus (lockjaw) germs. When kegs or barrels are opened the nails should either be drawn or bent over and the points hammered into the wood using hammer and metal block.

Housekeeping is one of the most important factors in accident prevention. Workers trip over loose objects on floors, stairs, and platforms; they are hit by articles falling from above; they slip on greasy, wet or dirty floors; they run against projecting, poorly piled or placed materials. Good housekeeping and good order are fundamental to successful plant operation.

Clear marking of aisles and of spaces reserved for storage with a ban on piling and placing of materials or articles in aisle spaces is a good housekeeping "must".



Exhaust Systems Need *Regular Maintenance*

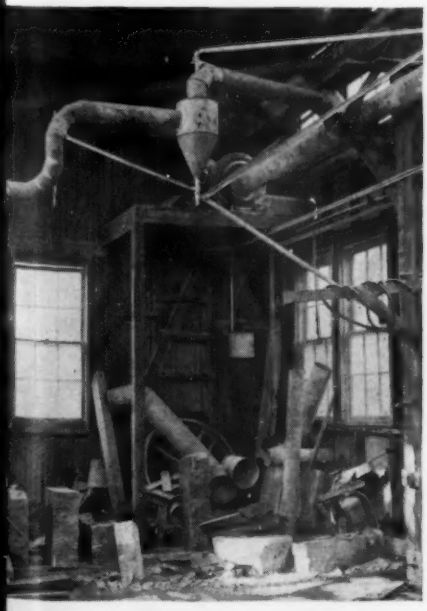
Every exhaust system is generally at its maximum efficiency at the time of installation. With careful maintenance and a regular cleaning schedule it can be kept that way.

AT THE time any exhaust system is installed, initial static pressures in water should be recorded on a file card for future reference. These figures are taken at hoods, various places in duct turns and at the fan, and serve as a check for maintenance men in the event trouble is experienced in subsequent operation. At a later date, similar readings taken at identical points will reveal blocked places in the system by showing a change in static pressures along the line. A 15 per cent extra capacity in the system will offset future headaches.

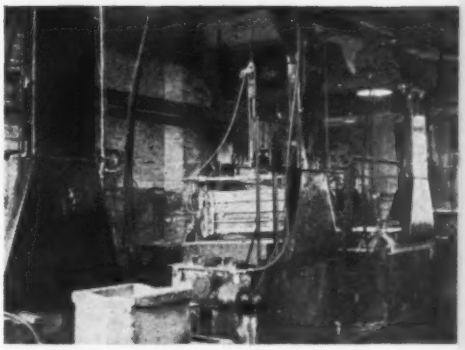
Much of this later trouble can be avoided too, if the system is scheduled for a periodic cleanout. This schedule of course is determined by the kind of work the system performs. Systems exhausting dusts or lint build up fast and need cleaning after each eight-hour shift. A 15-minute "dry run" following work stoppage is a good conditioner. Other systems may go a week or more without building up deposits, either because of lack of solid materials in the exhausted vapors or because of a minimum number of projections or turns within the duct system.

Every dust unit should have an ample number of clean-out doors closely spotted along the ducts, and these should be easily accessible to maintenance men. These are usually specified by the manufacturer following a study of the service to which the system is to be put. Any material removed by cleaners from hoods, ducts or separators during the periodic clean-up should be evaluated for possible salvage, but if it is to be discarded, the disposal should be taken care of at once. Combustible material especially should not be allowed to pile up, but should be taken to the boiler room or incinerator at once.

Once a day, motors, fans and belts should be inspected and cleaned and oiled, if necessary. This is especially important if corrosive acid fumes are being handled. An annual painting of the fan is usually sufficient, but to offset corrosive action a more frequent coating is necessary. Acid vapors in a system require that the inside and outside of hoods and ducts receive an application of three coats of an asphaltic-base, acid-resistant preservative coating both before installation and about every four months during use. Any inspection scheduled should be on a weekly basis and should include testing of supports and duct-joints. Steam or damp vapors in other exhaust systems also require a frequent servicing, and because of rust action, a dependable protective paint should be applied as needed.



This bunker exhaust system has clean-out places at duct turns and a platform for maintenance work on the primary dust separator. (*Mass. Dept. of Labor Photo*)



This rear view of an exhaust system serving a battery of plating tanks shows how the acid fumes attack even the outside of the hoods and ducts, regularly coated in and out with an asphaltic-base paint. (*Mass. State Photo*)

Lacquer fumes in a system carry a deposit that is difficult to clean and highly flammable. The coating usually builds up fast, especially in those sections of duct lines nearest the sprayer or dip tank. A complete replacement of duct sections is usually the only safe remedy.

Maintenance men should have personal protective equipment such as impervious gloves, respirators and heavy aprons to protect them when engaged in cleaning out systems involving hazardous chemicals. For safety's sake they should work in pairs, as frequently their work is undertaken after regular employees are gone and any sudden exposures to toxic materials might go unnoticed.

If static pressure readings checked against normal values show an increased fan suction with a corresponding drop of back pressures, the maintenance man on the system should look for closed blast gates or a clogged suction main. Increased suction usually means increased inlet resistance. Large pressure drops anywhere along the line accompany a reduced volume and localized clogging. Narrowing the distance between pressure measurements usually will locate the actual point of trouble, generally a blocked duct.

What is Good *"Light"* Housekeeping?

A regular program set up to check and clean lighting fixtures is an indispensable practice in good plant housekeeping operations.

EMPLOYING proper lighting maintenance, the average plant can obtain at least one-third more light than with conventional maintenance methods, and without any additional purchases of power or materials. One man, working a regular shift, can clean, relamp, and continuously service fluorescent reflectors that provide light for approximately 360 workmen. The maintenance man's time is paid for if the increased light provided through cleaning and relamping increases personal effectiveness to the 360 men only 0.28 per cent.

Cleaning and replacing of lamps and reflectors, plus the maintenance of proper voltage conditions are the essentials of proper lighting maintenance. When this upkeep cost is considered in relation to the cost of the entire installation, it is found that frequent cleaning of reflectors is an economical method of obtaining high light output.

A reduction in the labor cost of replacement can often be justified by group replacement of lamps in a lighting system. Under this method of lamp replacement, the original group of lamps are left intact until 80 per cent of their average life has been reached. At this time, 20 per cent of the original group will have failed, and the balance will have delivered 83 per cent of all the light they can deliver.

It is then often less expensive to replace the entire group and discard all the lamps because of the lowered value of useful light remaining in any lamp.

In reaching lighting equipment, for safety and convenience use the following chart of common safe practices:

TYPE OF EQUIPMENT	MOUNTING HEIGHT Up to 12 ft.	12 to 18 ft.	18 to 30 ft.	Above 30 ft.
Catwalk or truss	—	—	x	x
Crane, where available	—	—	x	x
Crow's-nest ladder	—	—	x	—
Disconnecting hanger	—	—	x	x
Portable maintenance platform	—	x	x	—
Relamping bridge	—	—	x	x
Stepladder	x	—	—	—
Straight ladder	—	x	—	—
Telescoping platform, elevating tower, etc.	—	x	x	—

Since porcelain enameled, mirrored glass and prismatic glass reflectors all have glass surfaces, extra strength of cleaners and detergents usually does no injury to surfaces. Alkaline compounds are used on all but aluminum reflectors. Alkalis tend to attack aluminum metal. The latter metal needs neutral detergents and special wax or wax-emulsion cleaners. Representatives of cleaner manufacturers are well acquainted with various types of dirt found in plant interiors. Consult them for the specific cleaners which will be found most satisfactory for special maintenance work.

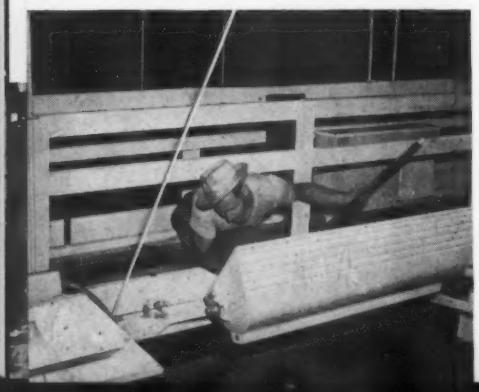
Lighting equipment can be mounted on special catwalks or on a catwalk built on trusses. Fixtures are normally mounted in such a way that no light is intercepted by the catwalk. For maintenance work it is swung from its normal position in toward the catwalk to a position in which it can easily be cleaned or relamped.

Rigidly mounted fixtures permit maintenance from a crane. The crane should be equipped with a safe platform from which the maintenance man can conveniently reach the lighting equipment. The mounting should be approximately six feet above the platform.

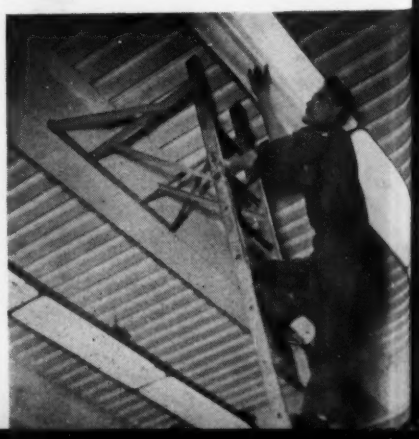
Under other conditions it is possible to use a crow's-nest ladder, which can be swung through 360° degrees, and because of its overhang, can reach reflectors located over machines, stock-bins, etc. Mount it on a heavy portable base.

Rigidly constructed portable maintenance platforms are used in plants where the mounting height is uniform and permits space for the platform. Stepladders are extensively used for low mounting heights because of their convenience and portability. Provide special clips, hooks, and boxes on the ladder which provide storage for spare lamps and cleaning cloths and permit the maintenance man to do the entire job on one trip up the ladder.

Even though these lights are far up near the ceiling, servicing of the system is made simple because the reflectors containing the lamps are suspended from catwalks. The plant has nearly three miles of "upside-down" mercury vapor lighting producing 35 foot candles of shadowless light. (*Westinghouse Photo*)



To meet certain reflector maintenance conditions, special lightweight braces can be conveniently added to standard straight ladders allowing for easier access to each row of reflectors. (*General Electric Photo*)



MEN AND MATTERS

(Continued from page 13)

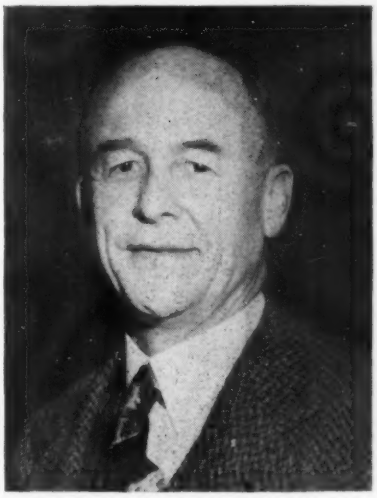
piratory diseases of all kinds. And the tough and healthy Marshallese were tough and healthy no more.

Then came the U. S. invasion of World War II, and Navy doctors set to work to undo the white man's damage as fast as possbile. The doctors even showed the natives pictures of American pin-up girls to convince them they could wear less clothes and still be good Christians.

It worked, and the natives are rapidly improving. But because Americans all wear shoes, the natives wanted to wear them too. "No!" said the Navy. The doctors know that once the natives adopt shoes they are likely to fall victim to one of the most common and pestiferous of all "civilized" diseases . . . athlete's foot.

However, even though for safety's sake as well as for warmth, American workers must continue to wear shoes, the skin of the feet can be restored to native toughness by stepping on "skin-toughening" mats. Provided by many industrial concerns in their shower rooms, these mats are saturated with a skin-toughening solution which adheres to the skin, toughens it, and protects it from athlete's foot fungus attack.

HEADS SOAP MEN . . . George A. Wrisley, president of the Allen B. Wrisley Company, Chicago, Ill., was elected president of the Association



of American Soap and Glycerine Producers at an annual meeting of the Association, held recently in the Waldorf-Astoria Hotel, New York. Mr. Wrisley succeeds R. R. Deupree, president of the Proctor & Gamble Co., Cincinnati.

SAFETY REWARDED . . . Two out of every three drivers for the Railway Express Agency will receive "Safety Merit" cards for accident-free driving in 1946, according to L. O. Head, company president. The firm, which operates 18,000 motor vehicles, lays special emphasis on its company-wide safety program in which all of its 77,000 employees participate. A safety director is in charge in each of the four operating regions of the country. The express agency includes all phases of accident prevention in its extensive employee training program.

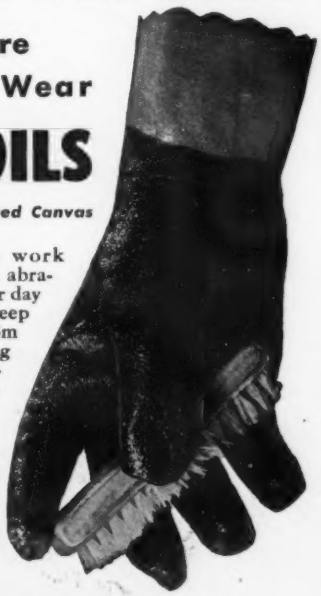
EYE BANK AWARDS . . . The Eye-Bank For Sight Restoration, Inc., has announced fellowships award appointments to Drs. Herbert M. Katzin, Frank Constantine, Arnold Forest and Milo H. Fritz to pursue studies in opthalmic research and pathology.

Liquid-Safe Work Gloves

That Assure Extra-Long Wear

STANZOILS

Of Neoprene-Impregnated Canvas



● These extra-tough work gloves stand long hard abrasive wear — low cost per day of use. But also they keep hands safe and dry from oils, acids, preventing costly injuries. Impregnated with milled type neoprene (not latex)— no peeling, positive non-slip grip gives workers confidence, speed. Black, comfort-fit size, curved fingers, gauntlet or knit wrist. Write for cost-cutting facts today.

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Sales Offices: Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, and St. Paul

. . . And Sudden Injury

Six men paid dearly for poor housekeeping here, three with their lives. "Good housekeeping" is not just a phrase to be dusted off every spring clean-up-time. Good housekeeping means safe housekeeping, all the year around in every corner of the plant. It means safe piling, not just neat storage. No one thought these wood pulp bales stacked on substantial floors were a menace. But they became a treacherous, crushing force that ripped out two floors, buried six workers in the wreckage. The picture shows the last one to be pulled up alive from the sea of deadly pulp.

← And Sudden Injury . . .

THE rescue squad worked six hours to free the three men still breathing under that tremendous avalanche. Bales, joists and partitions had to be moved out of the way. The rescuers walked gingerly over the surface, listening for signs of life, ready to start a feverish digging. The roar of the fall had been followed by a tomb-like silence. A hurried roll-call revealed the names of the missing. It looked as if no one could come out of that tightly wedged mass alive.

What a wonderful thing is rescue! To the three men who were saved the rolling back of oppressive weights seemed slow and endless. The first sight of light above was the light of heaven. Then came careful testing of arms and legs to know the worst. What was a broken leg to a man who had survived a crushed chest or a crushed skull? Those were found by the rescuers only when the entire area was cleared of debris.

Good storage is a science. Ask any warehouseman, any safety engineer, any plant superintendent. You have to know safety factors, weights, stresses and strains. You can go this high on the floor with this material—no higher. It's the old straw and the camel's back all over again. Just a truck rumbling by can vibrate an over-load to destruction.

Property can be replaced, but life and limb—for those there is no help but eternal vigilance. You can save what you have. The price of that saving is prevention of the hazardous. Look around you. Broken stair treads, cracked foundations, sagging floors—they all add up to unsafe housekeeping. Make your next inspection soon, make it thorough, make it a life-saver.

Stacks of material tumble over every day. Sometimes there is someone in the way. Always there is a good reason for the tragedy, the law of gravity being what it is. Go back far enough and you find that the cause was improper piling, poor skids, bad positioning, uneven flooring, or a dozen other potential accident-makers. To eliminate those causes, housekeeping must be good—and safe, all the year around.

Taken from an authentic account in OCCUPATIONAL HAZARDS files.

MODEL M-1250

Turretype

WELDER'S HELMET

- One piece, molded, sturdy fibre construction.
- No rivets to tear, loosen or burn out.
- No possibility of electric shock.
- Deep molded design for maximum protection.
- Absolutely light-proof.
- Unusually comfortable.
- Quick adjusting, molded fibre headgear.
- Easily cleaned and sterilized.
- Available with quick change, coverplate, metal lens holder.
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SYSTEMATIZED SANITATION

The GERSON-STEWART Corp.
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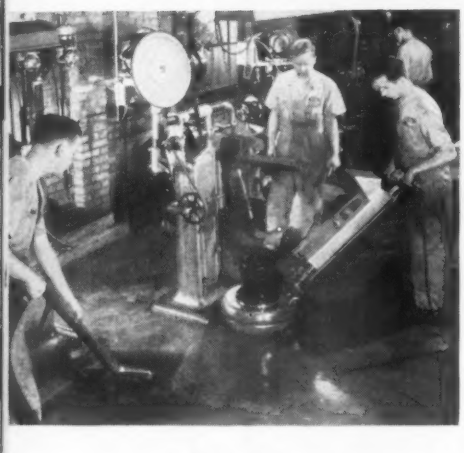
THE *Right* FLOOR MEANS EASY MAINTENANCE



Regular schedules and standardized operations for scrubbing and vacuuming oil and dirt from floors should be routine maintenance procedures. These operations can be planned to prevent stealing time and man power from crowded production schedules. (*Hild Photo*)

By JOSEPH F. KIERNAN
Technical Engineer
The Flintkote Co.

The selection of proper floors is an important factor in controlling plant accidents and in keeping maintenance costs down.

THE services of an engineer and flooring contractor are generally utilized in the initial selection of materials for the proper flooring. Much skill and care must be employed to specify the right material based primarily on the conditions it will be compelled to meet as a finished industrial floor.

Concrete may be erroneously selected for use where chemical drippings and spillage on the floor accelerate the rate of corrosion. Conversely, wood flooring may be specified in instances where it is not adequate to take heavy rolling loads without rapid disintegration and consequent safety hazards. In other cases, slippery floors may be installed in offices or plants that inevitably produce many accidents. In the instances cited the industrialist has not only bought an inappropriate design of the flooring itself, but a very poor selection of the materials to be used.

The proper repair of worn out floors presents one of the most serious and recurring problems in the operation and maintenance of industrial plants. The neglect of existing floors is moreover the cause of the majority of flooring accidents. Most industrial floors are subjected to heavy traffic over their wood or concrete surfaces. These rigid surfaces disintegrate rapidly under the mechanical abrasion and shock action of industrial traffic so that frequent repairs are a costly item. The old-fashioned method of making these repairs, in the case of wooden floors, is to replace worn-out boards with new ones nailed in place or to apply a piece of slippery light-gauge steel sheeting, while in repairing concrete floors whole areas would have to be chipped out to a required depth and fresh concrete fill poured and finished. Actually, in either case, this procedure is in reality a gradual replacement of the original floor base at a cost far in excess of the initial installation cost and with far less assurance of longer life than that inherent in the original material.

Cold-Laid Mastic

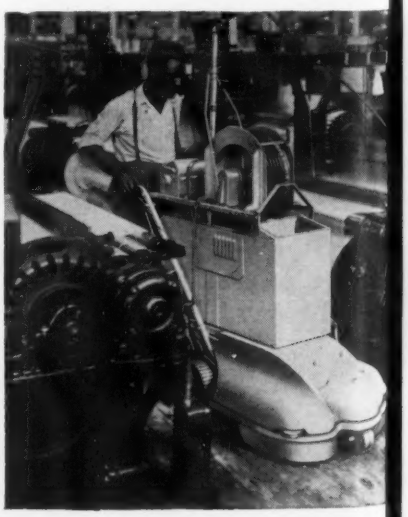
To eliminate the need for constant, costly repair and also to protect the original investment in industrial flooring against the destructive action of the elements and abuses incident to the operation of a plant, cold-laid mastic floorings have been developed which have, by actual performance on thousands of jobs, proven entirely satisfactory and economical.

The properties of asphalt in emulsion form, as used in cold-laid mastic flooring, eliminate the objections and risks attending the use of the so-called hot applied or solvent base materials. Additionally, asphalt in emulsion form is economical, and it can be adjusted to a suitable working consistency by diluting with water. It is stable and does not flow under heat, and its nature is such that when mixed with cement and aggregates, uniform distribution of the asphalt throughout the aggregate mass is insured.

Modern industrial asphalt emulsions in the form of mastic mixes, are practical and economical in the three phases of industrial flooring problems: (1) Patching, (2) Trucking surfaces, and (3) Complete floor resurfacings.

Experience in the field proves conclusively that cold-laid mastic floor surfacing has certain definite advantages. The most important are: (1) Quicker and easier laying, with consequent saving in shutdown time of the plant and labor expense; (2) Floor is ready for use in shorter time; (3) Greater economy of installation, maintenance, and plant operation are assured.

In addition to the foregoing advantages, the properties of the asphalt inherent in this type of industrial floor surfacing contribute the following characteristics to the finished flooring: (1) Greater waterproofness; (2) Resistance to the action of chemicals; (3) Less fatigue to standing operators . . . . a resilient and warmer surface; (4) Noise deadening; and (5) Dustless; (6) Slip-proof.



Floor maintenance calls for extreme care in selecting the best possible method and the proper equipment to do the job at hand—effectively, economically. (*Finnell Photo*)

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DUST COLLECTING SYSTEM

STOP ABSENTEEISM

CAUSED BY BREATHING DUST

You cannot help creating dust in your plant . . . but you can help prevent employees suffering from the occupational hazard of breathing dust while at work. Install Dixie Tubular Dust Collectors at all dust creating places. You will find that employee comorts will increase . . . personal efficiency will be stepped up . . . absenteeism will drop . . . production will be maintained.

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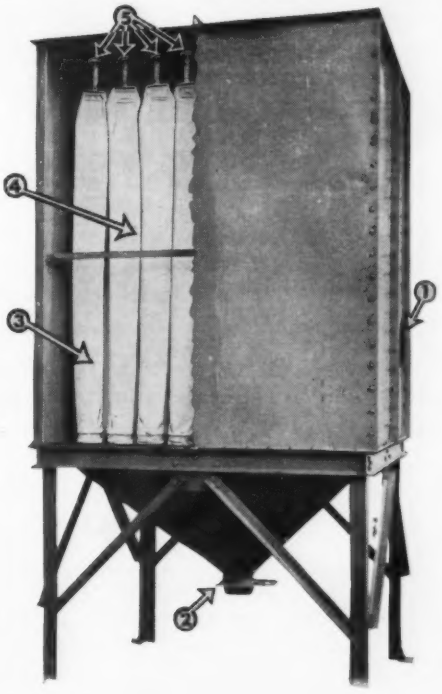
Dixie Tubular Dust Collectors are simple in design . . . sturdily built . . . positive in action . . . gives smooth, non-vibrating operation. Here's how Dixie Safeguards Employees automatcally . . . completely . . .



1 DUST-LADEN AIR ENTERS BELOW BOTTOM PLATE

2 DUST SETTLES IN HOPPER

3 FINE DUST RISES AND COLLECTS INSIDE OF TUBES

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Six Locker Room "Musts"

FOR ATHLETE'S FOOT CONTROL

Every time employees set bare feet down in plant shower and locker rooms they run the risk of picking up fungi causing athlete's foot. From foot to floor to foot: that is the chain which brings to the door of industry a problem of mass foot infection. Here are six locker room procedures that can help to curb this stubborn disease which has a negative effect on efficiency and well-being.

MANAGEMENT realizes that every measure which adds to foot comfort of workers means promotion of greater production efficiency and a step toward cutting down absenteeism. Medical authorities who have studied the industrial aspects of athlete's foot hold that satisfactory control of fungous infections of the feet is obtainable through good general sanitation and good foot hygiene. Treatment and elimination of athlete's foot aid in the recovery from the many other foot ailments that beset the industrial worker.

Industrial workers may have athlete's foot and not even be aware of it. According to medical authorities, virtually *everybody* suffers from the disease at one time or another. The organism causing athlete's foot is lodged as a parasite in the skin. such diseased skin is always shedding particles that fall to the floor where persons walk unshod in plant locker and shower rooms. Healthy feet pick up such particles and new cases develop.

In the majority of infections athlete's foot starts with a violent and annoying itch between and near the toes. As it progresses, small cracks appear there. These grow larger and deeper, and the skin peels. Infections are not always of a mild nature, and if resistance to athlete's foot is low, an attack may often lead to grave consequences, thus making the problem of combating the disease a vital health concern to industry.

Even though industrial locker and shower rooms may be thought to be free of the contagious fungi because of routine preventive measures, facilities for constant foot treatment should be provided. One mild infection unattended may produce many that are serious. Thus, the menace of continuous reinfection is ever present unless means of alleviating the condition are introduced into the company preventive health program.

Prevention Methods

The best measure to prevent industrial athlete's foot is not to let a single case occur which will contaminate the locker room environment. However, if the infection is already prevalent, steps must be taken to prevent the spread of further existing cases and preventive measures put into effect wherever there is traffic with unshod feet. Several economical methods can be used to reduce and eventually eliminate the epidemic. The six key precautions can be listed as follows:

1. Foot baths prescribed by the plant doctor and treated foot mats containing "toughening" solutions for use after leaving showers.
2. Fungicidal floor solutions for

daily locker and shower room sanitation.

3. Locker room fumigants to kill fungi on shoes, clothes, mats, lockers, etc.
4. Dusting powders in locker rooms for use in preventing reinfection of shoes and socks.
5. Shoe ventilators as standard protective equipment to eliminate foot dampness.
6. Sterilizing lamps to kill fungi lodged in shoes and socks.

The use of foot baths in industrial locker and shower rooms as a solution for the control of transmission of athlete's foot has long been offered as a method of combating the disease. These foot baths contain fungicidal solutions which, when stepped into kill the fungi on the skin and the feet so immersed cease to be vectors of fungi infection. Recent investigation and industrial experiences, however, have disclosed that fungicidal properties of foot bath solutions are not always effective in decreasing the incidence of athlete's foot since the fungicidal potency only remains stable over short periods.

Use of rubber foot mats which, when stepped upon, exude non-poisonous mineral salts which adhere to the skin, generally toughening it and making it resistant to fungus infection, is another widely used preventive measure.

Sanitation Methods

Sanitation methods for floors now include daily applications of fungicidal and bacterial solutions to locker and shower room floors. High dilution fungicides used as floor washes to control the spread of athlete's foot generally prove an economical method to combat the spread of the disease on the premises. On the average, one gallon of the ordinary commercially prepared solution, diluted as directed, covers approximately 15,000 square feet of floor space at about a cost of two cents per 100 square feet.

Dusting the feet with fungicidal powder is also used industrially to promote foot health. This type application in connection with locker room hygiene is a simple form of preventive treatment. Dusting the feet, shoes and socks helps guard against reinfection. Foot powders contain active ingredients designed to kill spores on direct contact. The powders aid materially in drying action important to reducing effects of prespiration dampness in which athlete's foot fungi thrive. Commercial powders are easily stored in individual lockers and may be used by mildly infected individuals to promote greater foot comfort.

Added Safeguards

Added safeguards in locker rooms are fumigants used to disinfect old shoes, socks, clothing, floor mats, etc. These kill athlete's foot fungi and have a deodorizing action as well. They are furnished in gas and spray form. This type of attack is also aimed at the prevention of bacterial infection of crotch, thighs, armpits or other parts of the body reinfected by use of contaminated clothes. Maximum saturation by commercially prepared gas and spray type fumigants,which are fire-proof and harmless, usually takes place in an hour, with one shot providing fumigation for approximately 750 cubic feet of space.

Plastic shoe ventilators introduced to industry as an outgrowth of successful wartime application, are another effective means of combating ills of athlete's foot. Because fungi thrive in prespiration — constant drying action is important. Controling the humidity inside of shoes to prevent chafing and irritation is found to be invaluable in overcoming conditions conducive to breeding the fungi. These plastic innersoles, which allow free circulation of air from heel to toe, are made of grids of interwoven, contamination - proof plastic fabrics. They work on the theory of furnishing constant interior ventilation of worker's shoes through the pumping action provided by the foot in walking.

Specially adapted sanitizers with sterile lamps to kill surface fungi lodged in shoe linings, inner soles, and socks are used industrially as a preventive against spread of infection from athlete's foot. This method provides disinfecting procedure on many jobs where the safety shoes or boots are worn by different persons.

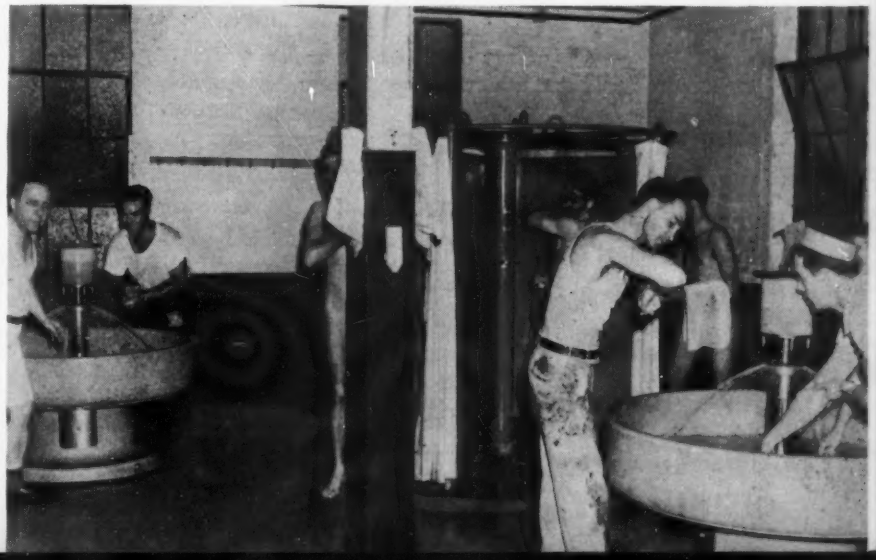
Conflicting Claims

Much discussion has taken place about athlete's foot and a variety of conflicting claims made for materials and methods reputed to remedy or prevent infection. One fact is certain, however: all cases of industrial athlete's foot are best treated under the direction of the plant physician. By this proper emphasis, measures for the care of feet will get directly at the elimination of the plant carriers.

A plant health program aimed at this clearing up of existing cases, plus the prevention of future ones through good locker room sanitation will decrease absenteeism, correct actual foot ills, and provide such advantages as less fatigue and irritability among workers.

●

Athlete's foot is transmitted in shower rooms where workers walk unshod. Daily mopping with fungus-killing solutions should be rigidly practiced.



The Alert Inspector Knows:

1 He can spot hazards.

2 He can analyze operations with a view toward accident elimination.

3 He can assist supervision in charting safe methods.

4 He can assist in employee education by personal contact.

Inspect . . . .
Or SUSPECT!

When we do something over and over, it becomes automatic, in time even meaningless. That is exactly what happens to many an accident prevention inspection.

POSSIBLY the reason for any inspection laxity is that safety men have had inspections thrust at them in all forms—in books, at conferences, and in schools. In fact it is a prime factor in safety education.

Are we taking full advantage of this factor?

Let us look at the purpose of inspections. Objectives can be broken down into several related headings:

1. To detect hazards.
2. To analyze operations, both old and new, for the elimination of possible accidents.
3. To assist supervisors and department heads as to the safe method of work, while continuing the efficient flow of production.
4. To make personal contact with the employees in furtherance of safety education.

Should management be included in the inspection committee? By all means. Some executive should at all times be on this committee along with a departmental head.

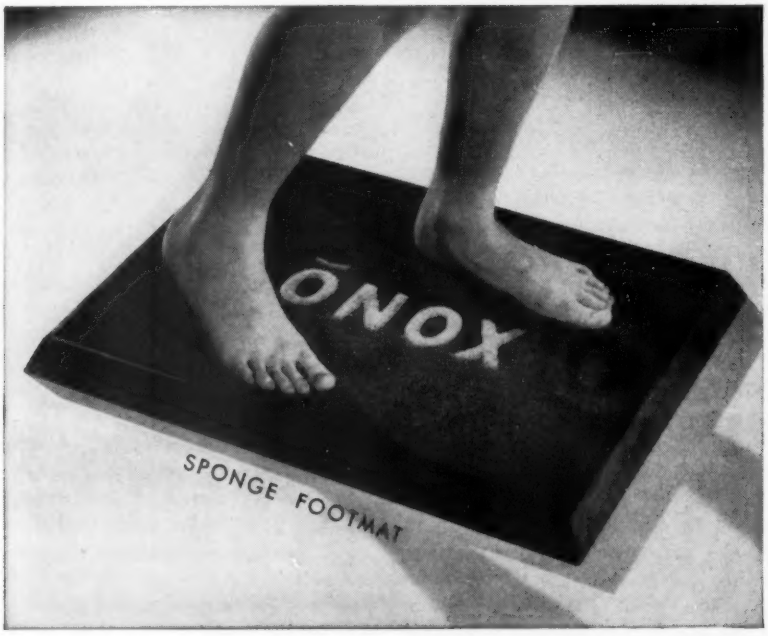
Get Qualified Technicians

A qualified technician for the specified inspection of a department, job, or special piece of machinery, is essential. No one person is qualified to know all the weaknesses, to identify all the specific hazards and to be able to report factual findings.

An inspector may be trained in heavy machinery, material handling, etc., but would only have a general knowledge of toxic poisons, respiratory infections, fumes, dust, and occupational diseases, So—

BE SURE TO HAVE THE RIGHT PERSON IN SPECIFIC INSPECTION ASSIGNMENTS.

Another point: should inspections be made at definite intervals?



Horse sense about **ATHLETE'S FOOT**

TIME Magazine calls foot baths *futile*. Some 91 skin specialists call them *illogical and potentially harmful to the skin.**

That's why Onox and the Onox sponge footmat were developed. Onox *steps up* resistance instead of *breaking it down.* It toughens the skin and helps counteract the softening effect of wearing shoes. Yet it is non poisonous and completely harmless to the skin.

Onox makes the skin unsuitable soil for the growth of the athlete's foot fungus. Here you have the *logical* answer to the athlete's foot problem. You solve the *problem* by removing the *cause.*

Bathers *like* Onox. It brings instant relief to burning feet.

60-DAY TRIAL OFFER *We will ship prepaid, your trial order for Onox and equipment. Use it for 60 days. If at the end of that time you are not completely satisfied (100%) you owe us nothing. For full details of the revolutionary Onox method now used by thousands of industrial plants from coast to coast, write*

*Time article sent on request

ŌNOX INC • DEPT. H2, 121 SECOND STREET, SAN FRANCISCO 5, CALIFORNIA

Much has been said, both pro and con on this subject. One trend of thought is that if the departments know exactly when the inspection will be made, they will have on their Sunday clothes and act accordingly. The other side feels as if that is fine; the department will know the inspection is to be made and thus will benefit by all the advance preparations.

One thing is sure, regardless of whether it is an impromptu procedure or an announced inspection, regular periodic trips should be established. Where more than one shift is working, all should have inspection schedules.

Next, should we use a check list?

A ready-made check list will be of little use for all purposes. One can be made, however, to fit an individual plant. Before any inspection is made, a definite list of hazards should be compiled. Set up the guide as follows:

1. Department
2. Machinery
3. Equipment
4. Material
5. Working methods
6. Physical facilities
7. New installations
8. Seasonable hazards.

Get all the information you need about and for each operation, area, department or job. Of course, a lot of this data will be duplicated, as certain items are applicable to all parts of the plant.

Don't overlook the health angle, protective clothing, lighting, fire regulations covered by municipal, state or federal codes.

Perpetual revisions must be made as current conditions cause the inevitable changes.

Inspection reports should be written in detail, not a hasty onceover of a list on a chart with "yes" or "no" answers.

A definite, organized inspection will usually reveal unsuspected dangerous working conditions.

Now, should the inspection always take the same form or route?

It is a good plan to make frequent changes in inspection procedure. One trip can start at the plant front or top floor and work to the opposite side. The next time the rear, the side or the basement can be the starter.

Check "Near-Accidents"

In general, a good inspector should see or visualize accidents that could happen, capitalize on *near-accidents*. Be curious, ask questions. Do not acquire a pessimistic mood toward the "inevitability of accidents." Be a good listener, respecting suggestions and "gripes" from all.

If visiting a department where respirators or goggles are worn, put on the same type of equipment, and thus set an example. The workers will like this.

Always contact the supervisor in the department to be inspected. Invite him to accompany you. Ask his advice about the safety of his department.

Always be ready to suggest constructive or corrective measures. But do not give an answer just to impress the questioner, if you are not sure. Write it down, have it solved later.

Have a copy of the last inspection with you and check to see if items listed have been eliminated or improved. A word of encouragement to a supervisor or a worker goes a long way toward a successful safety program. After all, the root of safety success is cheerful cooperation on the part of every employee.

GARDWELL Products

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For 22 years we have been designing and manufacturing safety clothing for industrial use. New items have been added as need for them appeared.

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No. 174 Gloves

No. 174

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Chrome leather — Underwriters Grade asbestos — fireproofed duck — oil-chem-ply garb (both light weight and heavy weight) — neoprene coated — rubber.

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● The durability of Hillyard Floor Treatments is measured by their Hi-Quality and the fact that for nearly a half Century they have given lasting satisfaction in the protection of all types of floor surfaces and in economy, time saved and labor costs reduced.

● There is a Hillyard Floor Treatment Specialist in your community ready to give advice on any floor treatment or maintenance problem . . . write or wire us today . . . no obligation.

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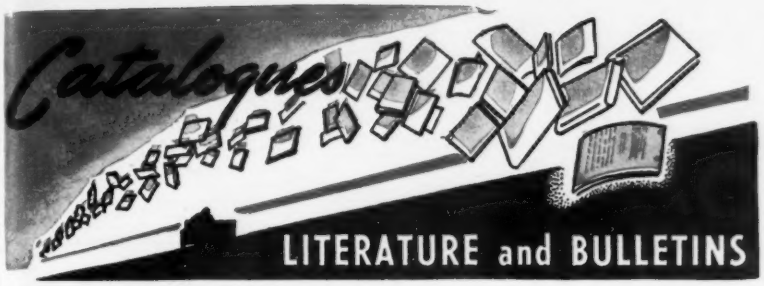


The publications featured on these pages were written by experts. They may be obtained without charge. To obtain these use the postcard bound into this issue.

FL-585—Dust Collecting Equipment . . . A new illustrated 20-page catalog from the Prat-Daniel Corporation on draft producing and dust collecting equipment is available from Thermix Engineering Company. Contains detailed description and specific installation information. Ask for catalog No. 200.

FL-586—Infrared Lamp . . . General Electric announces publication of a folder containing descriptions, photos and technical data on all of their industrial heat lamps. The numerous advantages, including safety and comfort, derived from using the lamps are indicated. Ask for folder Y-689.

FL-587—Wet Dust Collector . . . Technical bulletin No. 101 describing "Hydro-Whirl" a water-wash dust collector of both individual and central unit types used in a variety of buffing, grinding and trimming operations for improvement of plant health and housekeeping. Manufactured by Peters-Dalton Co.

FL-588—Industrial Flooring . . . Catalog from Master Builders Company containing information on Masterplate dustless, sparkproof, metallic-concrete flooring materials for new and resurfacing purposes.

FL 589—Visual Aids . . . Castle Films offer a catalog listing 730 pictures on 16mm film and 585 film strips for 35mm slide projectors on subjects useful in industrial and safety training programs.

FL 590—Utility Hose Mask . . . Descriptive pamphlet is available from Mine Safety Appliance Co., on M.S.A. Hose Masks with "all-vision" face piece for safeguarding workers where high concentrations of gas or low oxygen content exists.

FL 591—Spray Booths . . . Peters-Dalton, Inc., has issued Bulletin No. 201 on Hydro-Whirl, a wet-type spray booth installation designed to aid in eliminating troublesome air pollution in the industrial finishing room.

FL 592—Floor Maintenance . . . This booklet is offered by C. B. Dolge, manufacturers of sanitation preparations. It describes the company's floor maintenance and sanitation products and includes tabular information on the Dolge Three-Way Service Plan for preparation, application and maintenance.

FL 593—Cleaning Compound . . . Information has been prepared on Trojan Elektro-Purj-It, a cleaning compound used for hand cleaning, mopping, machine scrubbing and other sanitary operations in industrial plants. Manufactured by the Diversey Corporation.

FL 594—Sanitation Aids . . . A 63-page brochure issued by West Disinfecting Company describes products and services for the promotion of plant sanitation.

Washable UNIFORMS

Smart Work-a-Day Wear for Women

Keep production and inspection lines looking trim and up-to-the-minute in style—satisfy employee pride—with Moore newly-designed, well-tailored uniforms. Of beautiful, easy-to-launder Sanforized fabrics—all 100% cotton. Wide choice of lovely colors, priced attractively low. Write for illustrated folder showing new popular styles.

MOORE Work-a-Day WEAR

Our 40th Year 1907-1947

E. R. MOORE CO.
Department OH
932 DAKIN STREET, CHICAGO 13, ILLINOIS

Here's PROTECTION
Preferred by All Women Workers

KORONET HAIR GUARDS
VISOR EYE SHIELD STYLE

Available once again . . . a pre-war favorite with post-war improvements. Preferred by all women workers. Note these features:

- Protection Against Loosened Hair Falling or Getting Caught.
- Neat Attractive Glossy Ethofoil Eye Shield is non-inflammable.
- Comfortably Light, fits snugly, adjustable to any head size.
- Economical . . . needs no starching or ironing . . . pays for itself in laundering savings alone.
- Sanitary . . . allows for natural air circulation.

Added Advertising Value

Any trademark, name or slogan you desire can be imprinted on the shield in color.

Some Present-Day Users of KORONET Hair Guards

International Bakeries Corp.
National Dairy Products
Hydrox Corp.
Custom House Packing Co.
Union Specialty Co.

FREE SAMPLES—
Write Dept. OC4 Today for Free Sample, Literature and Prices.

REGAL MFG. CO. 3203-05 ELSTON AVE. CHICAGO 18, ILLINOIS

SANITATION as a Production Necessity

KEEP IT CLEAN is a byword for continuous good production. Here are six standardized procedures recommended and copyrighted by the Industrial Sanitation Research Foundation, Louisville, for cleaning floors, windows, lockers, lavatories.

FLOORS, COMPOSITION
RUBBER, LINOLEUM AND ASPHALT TILE
MACHINE-SCRUBBING AND WAXING

CLEANING MATERIALS

1. Liquid Utility Cleaner — 4 oz./gal. warm water.
2. Water Emulsion Wax.

TOOLS AND EQUIPMENT

1. 18″ or 24″ floor brush.
2. 24″ dust mop.
3. Floor machine with following attachments:
   a. Bassine scrubbing brush.
   b. Palmetto buffing brush.
   c. Felt pad.
4. Vacuum mopper.
5. Wax applicator.
6. Fine steel wool (size 99).
7. Mop, 24 oz.
8. Mop bucket.

FREQUENCY

Weekly for hallways and heavy traffic areas. Twice monthly for bottling and office areas. Consult the supervisor or schedule for specific date of cleaning.

METHOD

1. Pick up the trash and loose material.
2. Sweep the area with floor brush.
3. Dust the floor with the dust mop.
4. Prepare the Liquid Utility Cleaner solution.
5. Fill the tank of the floor machine with cleaning solution.
6. Scrub the floor with the floor machine and Bassine scrubbing brush. A tankful of cleaning solution should be sufficient for scrubbing 150 to 200 sq. ft. Refill the tank when necessary.
7. Pick up the excess cleaning solution with the vacuum mopper.
8. Scrub the corners and inaccessible places with fine steel wool.
9. Rinse the floor with clean mop and clean water. Be sure to remove any cleaning solution from the baseboard.
10. Pick up the rinse water with the vacuum mopper.
11. Permit the floor to dry.
12. Fill the wax applicator with Water Emulsion Wax.
13. Apply wax with long straight strokes in one direction. Spread wax on the floor in a thin even coat.
14. Permit the wax to dry for one-half hour.
15. Buff the floor with the floor machine and Palmetto buffing brush.
16. For heavy traffic areas, apply a second thin coat of wax, after the floor has been buffed.
17. Allow the second coat of wax to dry for one-half hour.
18. After the floor has dried, buff the area, using the floor machine with Palmetto buffing brush.
19. To remove highlights, place felt pad under the buffing brush and buff the floor again.

FLOORS, HARD
CONCRETE AND CERAMIC TILE
MOPPING

CLEANING MATERIALS

1. Powder Utility Cleaner—2 oz./gal. warm water.
2. Sweeping Compound.

TOOLS AND EQUIPMENT

1. 18″ or 24″ floor brush.
2. Two mop buckets.
3. Two mops, 24 oz.
4. Deck brush.

FREQUENCY

Daily.

METHOD

1. Pick up the trash and loose material.
2. If the floor is dry, sprinkle Sweeping Compound over the floor and sweep the area with the floor brush.
3. If the floor is wet, hose gently for preliminary cleaning.
4. Prepare Powder Utility Cleaner solution.
5. Dip the mop in the cleaning solution and mop the floor. Cover no more than 6 ft. by 6 ft. at one time.
6. Wring the mop and pick up the excess cleaning solution.
7. If the soil is difficult to remove, scrub the floor with the deck brush.
8. Scrub the corners and inaccessible places with the deck brush.
9. Rinse the floor with clean water and clean mop. Use separate equipment for this.
   Caution: Do not allow water to touch motor or other electrical equipment.

FLOORS, WOODEN
UNFINISHED AND PAINTED
MACHINE-SCRUBBING

CLEANING MATERIAL

1. Liquid Utility Cleaner—4 oz./gal. warm water.

TOOLS AND EQUIPMENT

1. 18″ or 24″ floor brush.
2. Pail.
3. Mop bucket.
4. Mop, 24 oz.
5. Hand scrub brush.
6. Floor machine with Bassine scrub brush.
7. Floor mopper.

FREQUENCY

Weekly. Consult the supervisor or schedule for specific date of cleaning.

METHOD

1. Pick up the trash and loose material.
2. Sweep the area with the floor brush.
3. Prepare Liquid Utility Cleaner solution.
4. Fill the tank of the floor machine with the cleaning solution.

(*Turn to page* 36)

Clean Cool DRINKING WATER

Stop GERM SPREADING PRACTICES

PORTABLE SANITARY

MEETS REQUIREMENTS OF PUBLIC HEALTH AUTHORITIES

FOR CONSTRUCTION AND MAINTENANCE CREWS

The Dobbins PORTABLE SANITARY DRINKING FOUNTAIN protects the health and strength of workmen on any job . . . anywhere . . . with cool, clean drinking water—at the press of a button! Aids railroad, highway and building construction, repair and maintenance crews . . . miners, and all other workmen on jobs where a permanent, sanitary drinking water supply is *not* available. Banishes germ-spreading practices such as use of "common" drinking cups, open pails, dippers, etc. Four gallon capacity tank is fully insulated. Air pressure for instant flow of water is supplied with a few strokes of the pump.

DOBBINS MANUFACTURING COMPANY
DEPT. 429 ELKHART, INDIANA

DISTRIBUTORS: Some territories are open for this fast-selling item. Write for complete details.

FOUNTAIN AND ACCESSORIES • • AVAILABLE FOR IMMEDIATE DELIVERY

No. 18 — Dobbins Superbilt *Portable Drinking Fountain* less all accessories. Only **$16.00**

Salt Tablet Dispenser, 500 tablet capacity, extra **$2.75**

Adjustable, Waterproof *Carrying Strap*, extra **$1.15**

Spill Cup, to catch overflow when used indoors **$3.50**

Mounting Bracket, holds fountain to wall or floor of buildings, trucks, tractors, locomotives, etc. . **$4.50**

All prices F. O. B. Elkhart, Indiana. Circular on request.

Dobbins *Superbilt*
PORTABLE DRINKING FOUNTAIN

Here's the Handy **DAYTON "ROLL-ALONG" SAFETY LADDER**

IDEAL FOR THE STOCK ROOM

. . . The Dayton Roll-Along Safety Ladder with its rubber tired swivel casters can be speedily moved in any direction with practically no effort.

Safety shoes with renewable treads hold ladder permanently and safely in place while ladder is occupied.

Constructed of tested airplane spruce throughout and reinforced with steel braces for additional safety. Folds compactly for convenient storing. Available in sizes 3-ft., 4½-ft. and 6-ft.

Elevating auxiliary platform which folds back in main platform adds height if desired.

These ladders are being used in many of America's largest plants. See for yourself! Write today for bulletin.

For Safety's Sake . . . consult our SAFETY DEPARTMENT . . . we have the complete line of safety equipment for your every requirement.

DAYTON SAFETY LADDER CO.

2337 GILBERT AVE., CINCINNATI 6, OHIO

For complete information, just check any or all items listed, and send us the coupon.

MAIL NOW

DAYTON SAFETY LADDER CO.,
2337 GILBERT AVE., CINCINNATI 6, OHIO
GENTLEMEN:
WITHOUT OBLIGATION ON MY PART PLEASE SEND ME FOLLOWING CHECKED BULLETINS.

.....SAFETY LADDERS SHOES	.....SAFETY GASOLINE CANS	.....SALT TABLETS & DISPENSERS
.....SAFETY LADDERS	.....OILY WASTE CANS	.....SAFETY GOGGLES
.....SAFETY CLOTHES	.....EXCELSIOR CANS	.....GLOVES
.....ROLL-ALONG LADDERS	.....WATCHMEN'S CLOCKS	.....FIRE BUCKETS
.....FIRE HOSE	.....ACID PUMPS	.....ROCK UP RACKS
.....FIRE EXTINGUISHERS	.....RESPIRATORS AND PARTS	.....“PLY”
		.....EYE SHIELDS

(Name) .....

(Company) ..... (Address) .....

FLOORS, WOODEN

(*Continued from page* 34)

5. Scrub the floor with the floor machine and Bassine scrubbing brush. A tankful of cleaning solution should be sufficient for scrubbing 150 to 200 sq. ft. Refill the tank when necessary.
6. Pick up the excess cleaning solution with the vacuum mopper.
7. Scrub the corners and inaccessible places with the hand scrub brush.
8. Rinse the floor with clean mop and clean water.
9. Pick up rinse water with vacuum mopper.
   Caution: Do not allow water to touch motor or other electrical equipment.

LOCKERS, WOODEN AND PAINTED METAL CLEANING

CLEANING MATERIALS

1. Liquid Disinfectant—2 oz./qt. water.
2. Powder Utility Cleaner—2 oz./gal. warm water.
3. Concentrated Roach Spray.

TOOLS AND EQUIPMENT

1. 24″ dust mop.
2. Several cleaning cloths.
3. Three pails.
4. Hand scrub brush.
5. Sponge.
6. Hand sprayer or electric sprayer.
7. Respirator.
8. Rubber gloves.

FREQUENCY

Twice monthly. Consult the supervisor or schedule for specific date of cleaning.

METHOD

For inside of locker

1. Remove the trash and loose material from locker.
2. Dust with a cleaning cloth.
3. Prepare the Liquid Disinfectant solution.
4. Dip a clean cloth into the solution and wring out the excess.
5. Wipe the inside of locker with the cleaning cloth.
6. Spray the bottom of locker lightly with Concentrated Roach Spray.
7. Leave locker open until insecticide odor has disappeared.
8. Replace clothing inside locker.

For outside of locker

9. Dust locker with dust mop.
10. Prepare the Powder Utility Cleaner solution.
11. Dip cleaning cloth into the cleaning solution and wring out the excess.
12. Wash outside of locker.
13. Dirt that is difficult to remove with the wet cloth is removed with an almost dry hand scrub brush.
14. Wring cloth dry and wipe off as much dirt as possible.
15. With a sponge and clean water, rinse and wipe dry.
16. Cleaning is more effective if wash and rinse waters are changed frequently.

LAVATORIES—BOWLS, SEATS AND URINALS

CLEANING MATERIALS

1. Powder Bowl Cleaner.
2. Liquid Disinfectant—2 oz./qt. water.
3. Powder Utility Cleaner—2 oz./gal. warm water.

TOOLS AND EQUIPMENT

1. Bowl brush.
2. Rubber gloves.
3. Hand sprayer.
4. Sponge.
5. Several cleaning cloths.
6. Two pails.

Operation I

FREQUENCY

Daily for inner side of bowls and urinals.

METHOD

1. Pour 4 oz. of Powder Bowl Cleaner into bowl. Wear rubber gloves.
2. Do not spill Bowl Cleaner on the floor. It contains acid.
3. Allow to stand in the bowl or urinal for 15 minutes.
4. Remove remaining stains with a bowl brush.
5. Use the wing of the brush to remove any deposit under the rim.
6. Flush the toilet.

Operation II

FREQUENCY

Four times daily for seats and lids of bowls and urinals.

METHOD

1. Prepare Powder Utility Cleaner solution.
2. Wet the cleaning cloth in the cleaning solution and clean both sides of the toilet seat.
3. Clean the outside and base of the toilet with the same wet cleaning cloth.
4. With clean water and a sponge, rinse the toilet seat, outer side of bowl and base.
5. Spray Liquid Disinfectant on toilet seat.
6. Wipe clean with a dry cleaning cloth.

WINDOWS

CLEANING MATERIALS

1. Powder Window Cleaner—½ oz./gal. water.

TOOLS AND EQUIPMENT

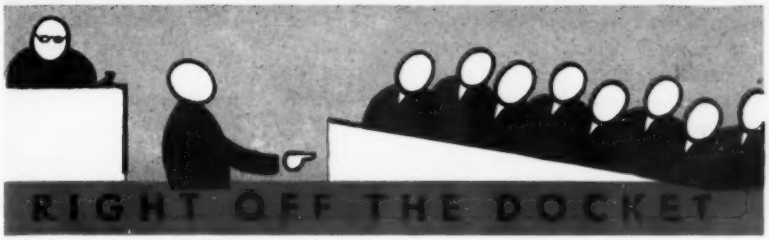
1. Two pails.
2. Sponge.
3. Chamois.
4. Absorbent lint-free-cloths.
5. Fountain brush.
6. Window squeegee.

FREQUENCY

Windows are to be cleaned every two weeks. Consult the supervisor or schedule for specific date of cleaning.

METHOD

1. Wipe loose dirt from windows and frames with dry cloth.
2. Prepare Powder Window Cleaner solution.
3. Wash windows and frames with sponge or cleaning cloth, using cleaning solution.
4. If preferred, a fountain brush may be used. A window squeegee may be used for large panes.
5. Remove excess water with chamois.
6. Polish with lint-free cloths.



The trend of litigation on workmen's health and accident compensation is reflected in these briefs on the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist. Clip cases and file for future reference.

Teacher Assaulted Entering Parked Car While Performing Extra-Curricular Functions

CLAIMANT in addition to her duties as teacher served as faculty advisor for the Junior Girls Reserve Club, which was composed of members of her school.

On December 21, 1943, the claimant in her capacity as faculty advisor, attended a meeting and Christmas party of the Hillside Junior Girls Reserve Club at the Elizabeth, N. J., Y.M.C.A. After the party she walked to the corner, about a half-block away, where her car was parked. She unlocked the door opposite the driver's seat, slid over behind the steering wheel, turned on the lights, and started the motor.

Then she was struck on the head from the rear, apparently by someone previously secreted in the back of the car. The assailant immediately fled. The teacher called for help and was driven in her car to a hospital, where it was necessary for her to remain for fifteen days.

The question presented is whether or not the injury resulted from, (a) an accident, (b) arising out of, and (c) in the course of her employment. The court concluded that the assault was the result of an accident because it was an unlooked for or untoward event which is not expected or designed. At the time of the injury she was pursuing a special assignment as part of her employment, therefore the assault occurred "in the course of her employment." It is equally clear that the assault arose "out of" her employment. Her special assignment necessitated her use of the highway at night. What happened was an accident directly attributable to a risk of the highway to which she was exposed by employment. It was therefore an accident within the contemplation of the Workmen's Act. Recovery allowed. Bobertz vs. Board of Education of Hillside TP. Union County. Supreme Court of New Jersey. September 17, 1946. 48 at. Rep. 2nd series, page 846.

Burden On Claimant To Prove Death Caused by Accident.

SAMUEL GLOBERMAN was employed as a salesman on a commission basis for many years. He covered an area of his selection in his own automobile and took orders from retail customers. Shipments of his orders were made directly to the customers, who in turn made direct payments.

While performing the aforementioned services, Globerman called upon a customer named Leiberman. The latter saw Globerman get out

of his car, go to the rear of it and open the trunk door for the purpose of obtaining certain samples. When Globerman reappeared with the sample he told the customer that he had been hit on the head by the door of the trunk.

SKIN IRRITATIONS?

Let Us Help You!

If skin irritations are a problem in your plant let us send you a trial quantity of Tarbonis. In literally hundreds of plants Tarbonis has proved a real help not only in overcoming skin irritations that have occurred, but also in guarding against their recurrence. Pleasant to use—easy to apply —sure of workers' cooperation. Does not interfere with the work to be done. Use the coupon . . . now.

Send for a sample of Tarbonis NOW.

THE TARBONIS COMPANY
4300 Euclid Avenue · Dept. OH · Cleveland 3, Ohio

Please send TARBONIS sample and literature to:

Company .....

Address .....

By ..... *Dept.* .....

Are These the Irritants?

Cutting Oils
Chrome Dyes
Formaldehyde
Sodium Bichromates
Lime
Metal Dust
Chemicals
Urea and Phenol
Plastic Compounds
Brine
Acid-Type Foods
Foodstuffs
Chemicals
Reagents
Naphtha
Soaps
Detergents

First aid application of cold towels to the injured's head for the period of an hour followed, and Globerman continued in his same employment for about two weeks afterwards. While calling on a customer, in the course of his business during that period, he suddenly collapsed. He was taken to a hospital and his right arm and leg were found to be paralyzed and he also was unable to speak. After undergoing continuous treatment for eight days at the hospital, he died. The physician in attendance diagnosed the cause of death as arising from embolism of the cerebral artery and a chronic rheumatic valvular heart disease.

A year and a half later, the body was exhumed and an autopsy performed. The deceased's head showed no evidence of lacerations, bleeding or a blow, however, an embolic process previous to death was apparent. The medical testimony submitted by the respective parties was conflicting as to the cause of death. It was concluded that the conduct of the decedent immediately after the acciden was inconsistent with the respondent's explanation of the death. There was no loss of consciousness and decedent continued his normal routine, performing his regular duties for a period of two consecutive weeks, when he suddenly collapsed. Claim disallowed.

Globerman vs. Lewis Steel Products Corporation, et al
September 17, 1946
48 At. Rep. 2nd series, page 795.

Not "Hazardous Employment"

CLAIMANT WILDE was employed as a plasterer in a building occupied by his employer who in connection therewith had a room on the second floor of the building where there was sand and mortar stored for the purpose of maintenance and repair. Wilde was plastering the second floor, had completed his work for the morning and had gone to lunch. When he returned from lunch, he fell down the

elevator shaft, an accident which resulted in injuries of which complaint is made.

The maintenance of the store room was determined not to constitute a work shop.

The work normally undertaken by the claimant was ruled not that of "hazardous employment" and had nothing to do with the fact that he was injured by falling down the elevator shaft on returning from lunch. He was not in a position to recover as "operator of an elevator," as he was not employed as such.

Under the terms of the Workmen's Compensation Act, the employee was not entitled to a recovery.

Wilde vs. Physicians and Dentists Building Company, et. al.,
Supreme Court of Oklahoma
11-19-46, 174 Pacific Reporter, Second Series, Page 382.

Modern new home of the I. D. Watch Case Company, Jamaica, Long Island.

View of washroom installation at the I. D. Watch Case Company—showing group of Bradley Washfountains.

DESIGNED FOR UTILITY

The modern plant shown above is an outstanding example of "designing for utility" and the Bradley Washfountains used in this plant are similarly recognized as foremost examples of efficiency plus utility.

One Bradley serves 8 to 10 persons simultaneously, thus eliminating that number of single-person wash basins. Furthermore, water consumption is reduced by 75% and valuable floor space released for productive use. In addition to these advantages, a Bradley installation safeguards health and reduces absenteeism: automatic foot-control, easily-cleaned central sprayhead, and self-flushing bowl keep hands free from contagious washbowl or faucet contacts and prevent contaminating collections of dirty water. Bradleys are nationally distributed through plumbing jobbers.

For further details and specifications, write for Illustrated Catalog 4308 and Survey of Washroom Layout Sheet. . . . . BRADLEY WASHFOUNTAIN CO., 2259 W. Michigan St., Milwaukee 1, Wis.

BRADLEY Washfountains

Send for your copy of Illustrated Catalog 4308 and Survey of Washroom Layout Sheet TODAY.

247

Personal Observation By Board Not A Substitute For Evidence

COWAN, who was employed in a "dipping department," received permission to go to the men's room. Before he left his station he washed his hands in naphtha in an effort to remove the paint from them. Upon arriving at the men's room, some 300 feet from his station, he struck a match preparatory to lighting a cigarette, his sweater caught fire and he was severely burned, losing the industrial use of his right hand.

The record shows that the company had promulgated a general rule forbidding smoking and had placed "No Smoking" signs at various points in the plant. However, it does not appear that such a sign was continuously displayed in the men's room during claimant's term of employment; or that he was advised that the "no smoking rule" was applicable to the entire plant in general, or to the men's room specifically.

There is some evidence to the effect that Cowan on numerous occasions and in the company of others, used the men's room as a smoking rendezvous, and that this practice was known to the company supervisory officials.

On the rehearing before the referee, the board deemed it advisable to make a personal visit to the plant in order to familiarize itself with the plant's physical layout. The floor of the men's room was littered with cigaret'e butts, and partly, perhaps mainly, on that ground, the board found that the company had. condoned smoking, at least in the men's room.

Since the sole issue was whether the employer condoned smoking in the men's room as accepted against the general rule against smoking in the plant, it became claimant's du'y to prove this by some evidence.

There was some evidence to this effect. However, the Court arrived at a conclusion that the opinion of the board was prejudiced by their observations during their personal visit to the plant. The only legitimate purpose of an inspection is to illustrate the evidence and provide a base for understanding and comprehending testimony upon the record.

When the arbiter becomes a wi-ness without testifying, the purpose of the view is prostituted. In fairness to the board, the judgment was set aside and the case remanded for further hearing, and for a finding by the board based solely upon the record and not upon personal observations.

Cowan vs. Bunting Glider Co., et al.
Superior Ct. of Pa., 10-30-46.
49 At. Rep. 2nd series, page 270.

in a word-

NEO-CORD

LONG WEARING SAFETY

Whether it's extreme heat, acid, oil, caustics or a combination that's ruining your good safety shoes, this one sole and heel combination is all you need to combat them all — NEO-CORD.

It means tough tire cords embedded in genuine Neoprene for sure-footing plus long wear under the toughest conditions. For long-wearing safety, specify NEO-CORD. Genuine Neo-Cord soles and heels are manufactured only by Gro-Cord Rubber Company, Lima, Ohio.

ARE YOUR SLIPS SHOWING?

TRADE GRO-CORD MARK

BOTTOMS THAT ARE TOPS IN SAFETY

The Pay Off

Each month Occupational Hazards magazine plans to select one or more outstanding safety plans in some industry that have paid off in a dollars-and-cents return attributed directly to reduced compensation costs or indirectly to uninterrupted production of indispensable personnel.

Company ledgers too often have no provision in their columns for this investment of time and effort.

The Seagram Company believes that plant operation and sanitation go together. Their employees go to school to learn sanitation measures.

By ELEANOR HARCUM

Joseph E. Seagram & Sons Inc.
Louisville, Ky.

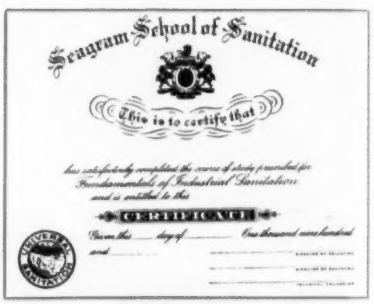
THERE are two ways of looking at sanitation. The way demonstrated most frequently by industry in general is called "corrective." That is, the cleaning is done *after* dirt accumulates. A certain amount of corrective cleaning will always have to be done, but Joseph E. Seagram & Sons, Inc., are working toward a different concept—we call it "preventive." We use the latest and best developments to prevent dirt from accumulating, in buildings, equipment, furniture, interior and exterior surfaces. Naturally, dirt occurs where people live and work, but it may thus be reduced to a minimum, requiring less difficult and less frequent cleaning.

In our program of preventive sanitation, we realize that the individual employee can contribute much to either the control or elimination of dirt so we go to school to learn how to control its accumulation. There are courses for sanitation workers, courses for management and training courses for special groups. Upon completion, members receive sanitation certificates.

The standard Cleaning Methods Manual is part of the education program, for it teaches employees how to perform cleaning operations scientifically. Periodically, these methods are revised at the suggestion of the plants, as improved techniques are discovered and developed. Likewise, sanitation newsletters are designed to keep management informed of the latest developments and findings in the field of sanitation. Slides are available for courses at any of the plants, and a continuous series of lectures and plant demonstrations is being conducted at several plants.

We also have a measuring device by which we can judge the success of our program—a rating form. Each plant has set sanitation goals and is rated each month, thereby showing the activities and the cooperation of the various departments in the plant.

The Industrial Sanitation Research Foundation operating in conjunction with the Joseph E. Seagram & Sons, Inc., carries on research studies on proper supplies for janitors' use, methods and frequency of cleaning. Chemicals, detergents, disinfectants, waxes and equipment are tested and reported. Where equipment is inadequate or unsatisfactory, the Foundation prepares designs to meet the rigid requirements which will guarantee us a high level of sanitation. Sanitation kits are in use, work methods are studied, equipment of different size, weight and style is tested with the aim of simplifying sanitation work.


Seagram School of Sanitation

This is to certify that

has satisfactorily completed the course of study prescribed for Fundamentals of Industrial Sanitation and is entitled to this

CERTIFICATE

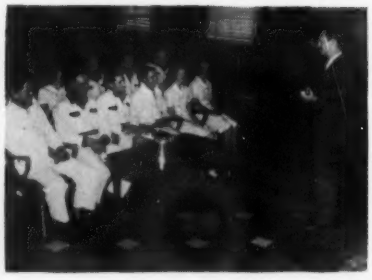
Given this ____ day of ____ One thousand nine hundred and ____

This is a sanitation certificate awarded to successful members of Seagram sanitation classes.

Architectural design is called in to "build out dirt." Such details as flush mounting, cove bases, durable construction materials to insure protection against dust and wear, are incorporated into installations throughout the company. Other architectural problems include future construction of waste receptacles with disposable liners, ventilating systems for closed areas, etc.

We count sanitation as an integral part of production. It has paid for itself many times in product integrity and company prestige.

Members of classes such as this receive Sanitation certificates when they have satisfactorily completed a course.



PREVENT ACCIDENTS by using AMERICAN Counter-Tred MATTING

A durable rubber and cord matting with a resilient non-slip surface for use in wet or slippery areas. Ridged bottom affords aeration and drainage. Easily handled for cleaning. Keeps the feet dry. 3/8" thick, 24" wide, any length.

—Also—

AMERIFLEX HARDWOOD LINK MATTING

"WALRUS HIDE" ROLL RUBBER MATTING

TUF-TRED TIRE FABRIC MATTING

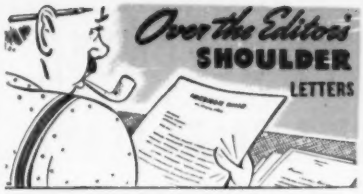
NEO-CORD OIL AND GREASE RESISTANT COUNTER-TRED MATTING

EZY-RUG RUBBER LINK MATTING

•

For prices and folder, "A Mat for Every Purpose" for promoting safety and sanitation and reducing fatigue, write

AMERICAN MAT CORPORATION
America's Largest Matting Specialists
1751 Adams St. Toledo 2, Ohio



Puppet Shows

OCCUPATIONAL HAZARDS:

I read with interest your article in the January 1947 issue entitled "Pulling Strings for Plant Programs." I am interested in Puppet Shows for Safety and would appreciate it very much if you will advise me how to contact Messrs. George Latshaw and Gerard Gentile of Cleveland, Ohio. — Louis Emden, Program Chairman, American Society of Safety Engineers.

Address forwarded.—Ed.

Welding

OCCUPATIONAL HAZARDS:

I have a patient who has a profound anemia for which no other cause can be found other than the fact that he is employed as a welder on ships and does a lot of galvanizing. I would greatly appreciate any information you can give me as to welding and galvanizing as an occupational hazard; also where I may find literature on the subject.—Dr. Joseph Shankin, 1043 Stratford Ave., Bronx 59, N. Y.

Reference literature has been forwarded. Red lead painted surfaces on which welding or cutting is done cause a possible exposure to lead fumes. That exposure, of course, would account for anemia as an eventuality, but you have no doubt tested your patient for the presence of lead. The only other fume which occurs to any great extent is zinc oxide in galvanizing. This exposure merely causes an acute metal fume fever rather than any chronic condition.—Ed.

We're Glad

OCCUPATIONAL HAZARDS:

We note with interest the improved format of your monthly publication, "Occupational Hazards." The larger size enables a better presentation of the material, both text and pictures, and improves your book a great deal.—C. C. Fracker, Executive Assistant to the President, Hamilton Foundry & Machine Company, Hamilton, Ohio.

Hard Working PROTECTION

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HODGMAN RUGGED RUBBER SURFACE WORK SUIT

No. 1032 Rubber Surface Work Suit is medium weight and waterproof, particularly suited for men who work under wet or muddy conditions. No. 1043 Parka Suit affords warm head to toe protection against foul weather. Ideal for airport personnel, truckmen, railroadmen and others.

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No. 7100 is a strong, black industrial apron which resists dilute acids and abrasion.

No. 7110 apron is made especially for acid protection.

Send for catalogue information about these and other Hodgman Industrial Garments.

HODGMAN Rubber Company
FRAMINGHAM, MASS.

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GIVES YOU A SAFER PLANT AND INCREASED PRODUCTION

Hoffman Heavy Duty Industrial Vacuum Cleaning Systems are eliminating dust hazards and cutting costs in plants of almost every type. There are many applications where the use of Hoffman Vacuum Equipment will give you definite savings in time and costs on production operations and will put an end to your dust problems.

Vacuum cleaning eliminates blowing and removes hazardous metal dust which also causes product damage.

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IT WEIGHS 1/4 OF ITS EQUIVALENT IN RUBBER GARMENTS

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VINYLITE MIRACLE PLASTIC *Protective Clothing*
FOR INDUSTRY, SHOP, OFFICE AND HOME

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OVERALLS, COATS
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Special Garments Designed on Request

Complete protection in everything from light office work to the most severe industrial jobs, PLY-GARB garments are roomy, well-tailored, long-wearing, easy to clean and low priced.

- BEATS RUBBER EVERY WAY—costs less, more resistant, one-fourth the weight, lasts four times as long.
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WRITE for samples and new illustrated catalog.

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Fire Extinguisher-Tire Pump

OCCUPATIONAL HAZARDS:

I wonder if you can give me the address of the manufacturer of the fire extinguisher which can also be used for putting air into tires? I have had this mentioned several times lately, and yesterday had two different dealers ask if I could supply them with it; so I will be grateful for this information. — Franklin Finch, Manager, Finch Specialty Company, Kansas City, Missouri.

A firm in Beacon, New York, known as Beacon Devices, sells a small cylinder containing carbon dioxide for inflating tires which they claim can be used for extinguishing fires also. Also Ford Motor Car Co. has just announced a similar product.

Eye Ease

OCCUPATIONAL HAZARDS:

Would appreciate some information on the address of the company who advertised the eye drops called EYE EASE in your March 1945 issue. As I have been in service in Europe for the last 27 months I'm a little behind on copies of Occupational Hazards and am trying to catch up now. Would be grateful if you could offer me information on this. —Mari Goebel, R.N., Creamery Package Mfg. Co., Lake Mills, Wisconsin.

"Eye Ease" may be obtained from The Detroit First Aid Company, 179 West Jefferson Ave., Detroit 46, Mich.

Press Brake Guarding

OCCUPATIONAL HAZARDS:

I have been carefully going over your January issue of Occupational Hazards Magazine and was very much impressed with the contribution you are making toward the cause of safety.

We have had the misfortune to have an amputation of a finger at one of our plants where a press brake is used to bend up some parts of a refrigeration cabinet. I note in the article entitled "Hazards are Illegal in Britain" written by Ronald Ogden, in the third column on page 22, the following wording, "in the particular care of the bending brake, which is a special type of power press, the final approved design was suggested by a foreman from a large engineering company." I assume the writer

ELIMINATE THE
Hazards of Handling Acid

The F-H PUMP is a real aid to industry because:

It is SAFE. A dangerous air pressure inside of the carboy cannot be generated.
It is SPEEDY. Starts quickly and operates faster than a siphon.
It is SIMPLE to HANDLE. Can be operated either by hand or by foot.
For Carboys, Drums and Barrels.

PRICE $12.80 COMPLETE
IMMEDIATE DELIVERY.

DUPOR
MINIATURE RESPIRATOR

Fits different shaped noses, 9 sq. inch filtration area. Weighs less than 1 oz. Comfortable.

The DUPOR may be worn with goggles or glasses. Does not obscure the vision. Enables wearer to eat, sleep, talk and smoke naturally. It's the biggest value in a little respirator on the market today. Affords protection at all times.

PRICE $12.00 DOZEN — Sample, postpaid for $1.00

GENERAL SCIENTIFIC
EQUIPMENT COMPANY
"Everything for Safety"
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For marking traffic lanes in plants, loading platforms, storage rooms, etc.

"Economy" Floor Liner

OPERATES ON A SPREADER PRINCIPLE —NO BRUSHES OR SPRAYS—NOTHING TO GET OUT OF ORDER.

Easily and quickly applied to any firm surface; works close to piled material or other projections. Uses any kind of "zone" paint. Capacity 2½ gallons.

Standard spreader 4" wide. May also be furnished in widths 2" to 6".

WRITE FOR BULLETIN H-47

IPCO
Safety Equipment for all Industries
INDUSTRIAL PRODUCTS COMPANY
2830 N. FOURTH STREET • PHILADELPHIA 33, PA.

is referring to what is called a press brake. So far I have not been able to find where this particular type of equipment is effectively guarded.

I wonder if it would be possible for you to give me more information as to where I might secure information on this type of guard which this article speaks of. I will certainly appreciate this information if it is possible for you to give me this.—Frank W. Fiske, Safety Director, Brewer-Titchener Corp., Cortland, N. Y.

Information has been forwarded.

Color Standards

OCCUPATIONAL HAZARDS:

We have read with considerable interest your (James A. Meacham) article, "You Can Put Color to Work . . . For Morale . . . For Safety," in the January issue of OCCUPATIONAL HAZARDS. We are always interested in articles which mention the work of the American Standards Association, and on the whole we believe that you have done an excellent job.

We would, however, call your attention to the last sentence in column 3 on page 14, in which you state, "Orange is an optional color in this Code for hazardous marking." I believe that you were referring to American War Standard Safety Color Code, Z53.1-1945. We are enclosing a copy for your ready reference. I have searched diligently through this Standard and can find no basis for your statement that orange was considered as an optional color. As a matter of fact in one of the subcommittee meetings such a proposal was made, a vote was taken, and this proposal was definitely rejected. —Henry G. Lamb, Safety Engineer, American Standards Association, New York City, N. Y.

ASA is correct. Orange is optional in practice, not in the Code.—Ed.

"Wetter" Water

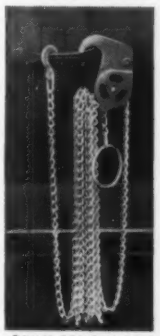
OCCUPATIONAL HAZARDS:

If available, we should like to have two reprints or tear sheets of the article on wetter water, the first part of which appears in your January issue, as written by Mr. N. J. Thompson. We should like to have all parts. This is a very good series of articles. —C. M. Griffin, Director of Research, Lodge & Shipley Machine Tool Co., Cincinnati, Ohio.

Tear sheets have been forwarded.

WORLD'S EASIEST WAY TO OPEN ANY BOX CAR DOOR

MONARCH ONE MAN CAR DOOR OPENER



One man can open the most binding, balky box car door with the Monarch Car Door Opener. Get greater safety . . . speed loading and unloading schedules . . . order an ample supply to fill your needs today!

• No strained muscles. No slips or falls. No broken arms, legs or mashed fingers. No fatalities. No time wasted. No "gangs" needed. No time loss.

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For SAFETY'S Sake

No. 120 "Hollywood Turbans"

HOLLYWOOD TURBANS

Choose HOLLYWOOD TURBANS for the protection to women's hair so necessary in today's industrial plants. They end the danger of accidents from loose hair being caught in machinery. Adjustable to any head size. Washable, need no ironing. Women ENJOY wearing them! Write today.

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CAUTION
TO PREVENT FIRE
KEEP ALL TRASH-OIL SOAKED WASTE AND DISCARDED CLOTHING PICKED UP AND PLACED IN RECEPTACLES PLACED HERE FOR THIS PURPOSE

THINK
A FIRE TO-DAY
NO JOB
TO-MORROW

FIRE EXTINGUISHER HERE

CAUTION
KEEP ALL TRASH PICKED UP AND PLACED IN THIS RECEPTACLE

TO THE
FIRE ESCAPE

NO SMOKING
ALLOWED IN THIS BUILDING
AT ANY TIME
CARRYING LIGHTED CIGARS
PIPES OR CIGARETTES
STRICTLY FORBIDDEN

DANGER
GAS
KEEP LIGHTED CIGARS AND CIGARETTES AWAY

Many a worker stands helpless as flames destroy his job. And the worst of it is, the hand of Carelessness nearly always holds the torch.

Fires don't just start themselves . . . they are caused. And every fire is a small one at first.

STONEHOUSE SIGNS

FOR ACCIDENT PREVENTION

teach workers to mentally fight fire before it starts . . . by being careful. Many Stonehouse Fire Prevention signs are shown in our Catalog No. 8. It's Free on request.

NO SMOKING

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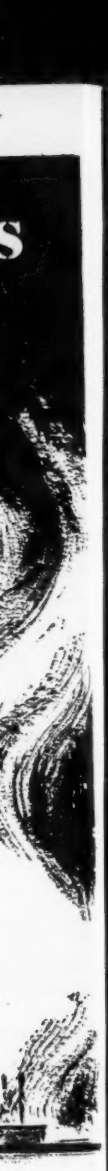
ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS



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FIRE PROTECTION FOR INDUSTRY

A SECTION IN WHICH ARE PRESENTED THE VARIED SPECIALIZED PROBLEMS AND SOLUTIONS TO FIRE FIGHTING CONTROL AND PROTECTION IN INDUSTRY

Industrial Fire Picture of the Month 46
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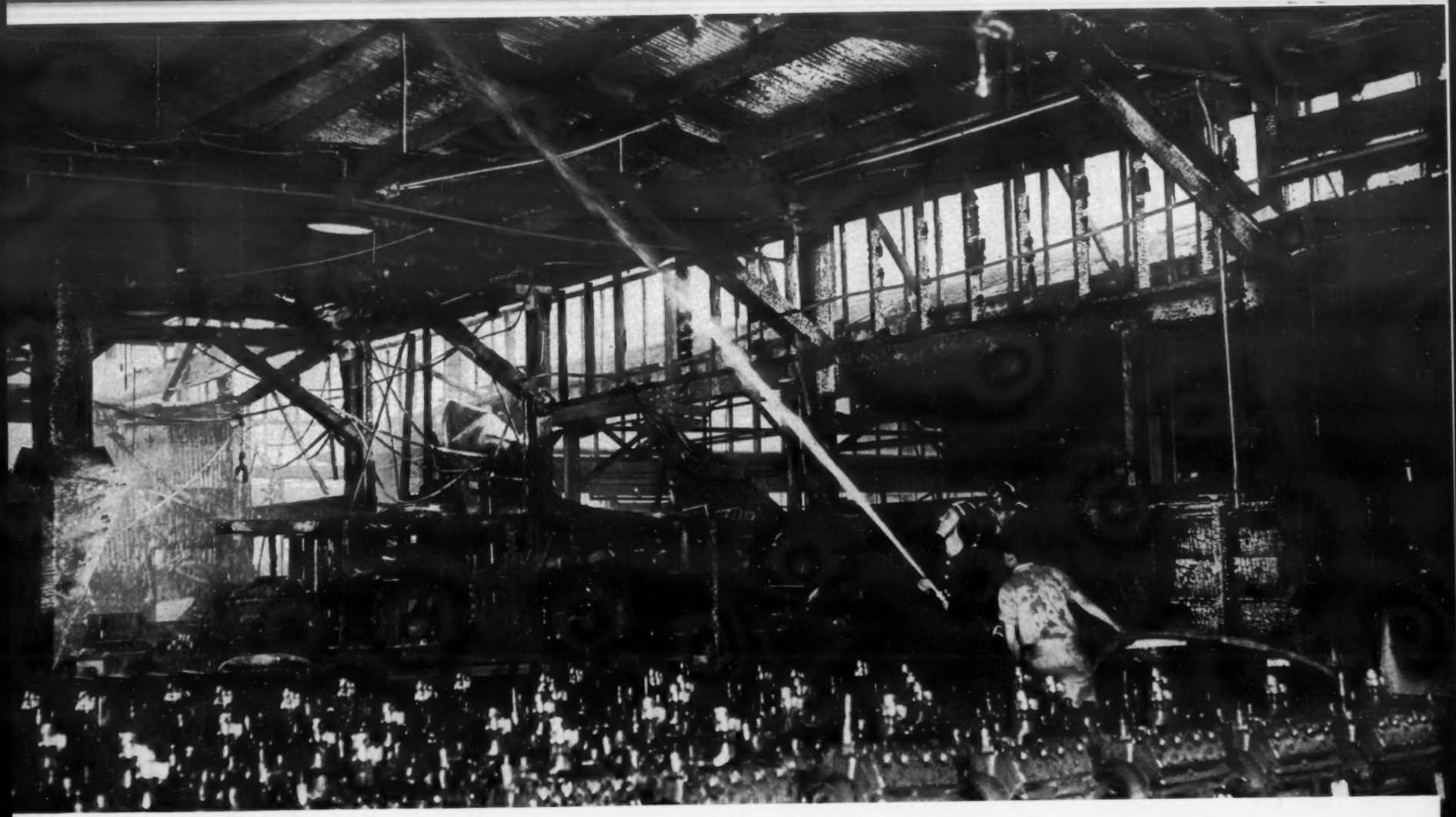


TOO LATE FOR PREVENTION — INDUSTRIAL FIRE PICTURE OF THE MONTH

Defective electrical wiring and poor housekeeping of flammable solvents combined to destroy irreplaceable motor parts estimated at thousands of dollars value in a five-alarm fire which gutted the industrial installation of this motor plant at Oakland, California. The blaze started when a mechanism used to clean engine parts short-circuited in a tub of cleaning solvent. The solvent exploded, showering the interior of the corrugated structure with flaming fluid. A considerable number of valuable finished automobile engines as well as plant reconditioning machinery was destroyed. However, local firemen, with the cooperation of plant employees, saved a wing of the plant which rebuilds motors. The cleaning solvent vaporizes quickly and exploded violently when ignited by the sparking. The sheet of clinging flames thrown to the roof and surrounding structures took 45 firemen three hours to extinguish. Nine out of ten times this type fire is preventable by safe storing and careful handling of supplies of flammable solvents...plain good housekeeping.

If It's Rubbish - - - It's Dangerous!

You don't have to be an expert to know that accumulations of rubbish follow bad housekeeping as surely as night follows day. Rubbish is industry's headache, and its elimination means the removal of a dangerous fire hazard, but you have to keep it moving to get rid of it.

THROUGH intelligent understanding of the fire hazards common to all industrial plants, every fire protection man eventually arrives at the same conclusion: the cleaner the plant the less likelihood there is of fire. Yet cleaning is an endless task and production schedules don't wait for broom and shovel work. Planned housekeeping looks good on paper in the superintendent's office, but right outside his door somewhere he can still probably find the box that paper came in.

Nothing grows as spontaneously as a rubbish pile. Just one candy wrapper thrown into a corner can start what soon looks like a prosperous junk yard, unless you keep it moving out toward the ash can. Men will walk from distant departments to casually add their little contribution of scrap. And to that pile must be added all the accumulation of crates and cartons discarded from incoming materials which no one seems to have the heart or the authority to throw out.

The danger lies of course in the combustibility of some of the materials lying around, plus the fact that disorder breeds more disorder, until slovenly work habits are built up. In some cases it may finally take an actual explosion to jolt a department out of its rubbish-mindedness.

Oil-soaked rags, discarded paint-covered clothing, excelsior, shavings, etc., belong in covered refuse cans which can be removed from the workroom and emptied daily. Waste residue from equipment, lacquer deposits removed from in and around spray booths, drippings from dip tanks, coating machines and drying ovens, all should be routed to the dump without any inside stop-overs. Damaged stocks of highly flammable materials in the work areas should be salvaged as quickly as possible and the cans thrown out. Sweepings and combustible dusts removed from motors, ledges, elevator shafts and similar equipment should be placed in approved fireproof waste cans pending disposal.

Four types of ignition common to a plant make potential dynamite out of even the most insignificant pile of rubbish. Flames, sparks, heat and spontaneous combustion—those four headings cover all the ignition sources possible in a plant. The following table outlines conditions to watch for in the vicinity of flammable waste materials.

FLAMES	Open lights. Matches and cigarette lighters. Fires in boilers; water heaters. Burning materials. Cutting and welding torches.
SPARKS	Static electricity. Friction from presence of metal or other foreign material in grinding, mixing or conveying equipment. Electric shorts. Sparks from tools, motors, snap-type switches and chimneys.
HEATED MATERIALS	Glowing metals, cinders, filaments of electric lights. Unprotected and portable electric lights; glowing embers of cigarettes, cigars or pipes. Overheated bearing on a line shaft or mill. Hot armature of a motor.
SPONTANEOUS IGNITION	Reaction of sodium and potassium in water, turpentine and ammonia in the presence of chlorine and hydrogen and chlorine in the presence of light. Oxidation of finely divided metals such as magnesium and aluminum. Bacterialogical action on damp grain and hay. Oxidation of oils and fats on wiping rags.

this motor plant at Oakland, California. The blaze started when a mechanism used to clean engine parts short-circuited in a tub of cleaning solvent. The solvent exploded, showering the interior of the corrugated structure with flaming fluid. A considerable number of valuable finished automobile engines to the roof and surrounding structures took 45 firemen three hours to extinguish. Nine out of ten times this type fire is preventable by safe storing and careful handling of supplies of flammable solvents...plain good housekeeping.

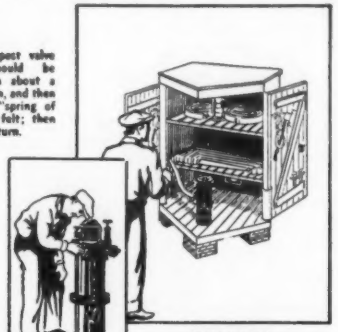
FIRE INSPECTION *Data Sheet*

TRY THE VALVES

Actually operate the valves to be sure the valve is in full open position.

VALVE INDICATOR POST

Indicator post valve controls should be turned down about a complete turn, and then back, until "spring of the rod" is felt; then down a half turn.



HYDRANTS

Free of water?

Outlets tight?

HOSE HOUSES

All equipment in place?

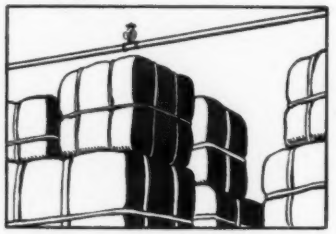
Hose properly maintained?

FIRST AID FIRE APPLIANCES

Fire pails and all other units in place?

Extinguishers charged within year?

Hose sets—nozzle attached, hose neatly stacked, clean and dry, valve tight?

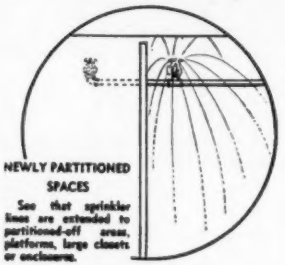


HIGH PILED STOCK

Can water from sprinkler heads distribute properly to put out a fire? At least 24 inches, and preferably 36 inches, is needed between highest piled stock and sprinkler lines.

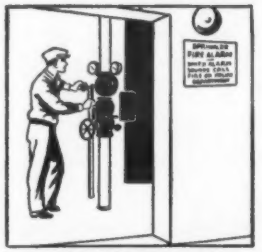
SPRINKLER HEADS

Replace those badly corroded. Clean or replace heads painted or loaded with dust.



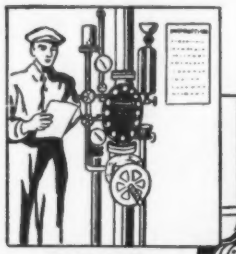
NEWLY PARTITIONED SPACES

See that sprinkler lines are extended to partitioned-off areas, platforms, large closets or enclosures.



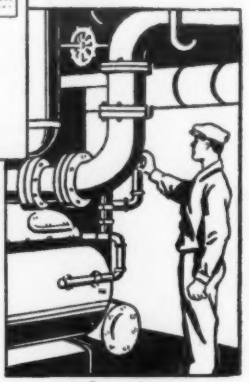
SPRINKLER ALARM TEST

At top of each sprinkler system there is a small outlet for testing. With this outlet open, man at valve observes operation of alarm.

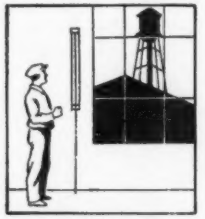


DRY PIPE SYSTEM

Observe at least weekly that air pressure is correct. Follow manufacturers' instructions closely on dry pipe and other special types of sprinkler systems.

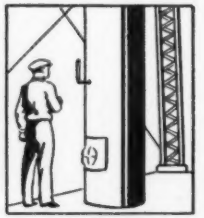


START THE FIRE PUMP



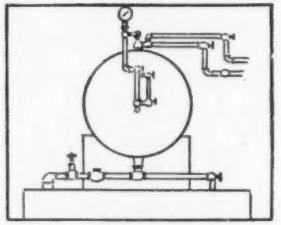
WATER IN TANK

Reading mercury gauge



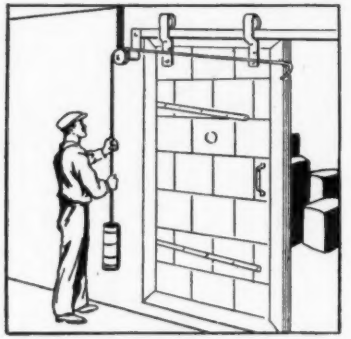
TANK HEATING

Reading thermometer in drop pipe of tank



PRESSURE TANK

Water level and pressure correct?

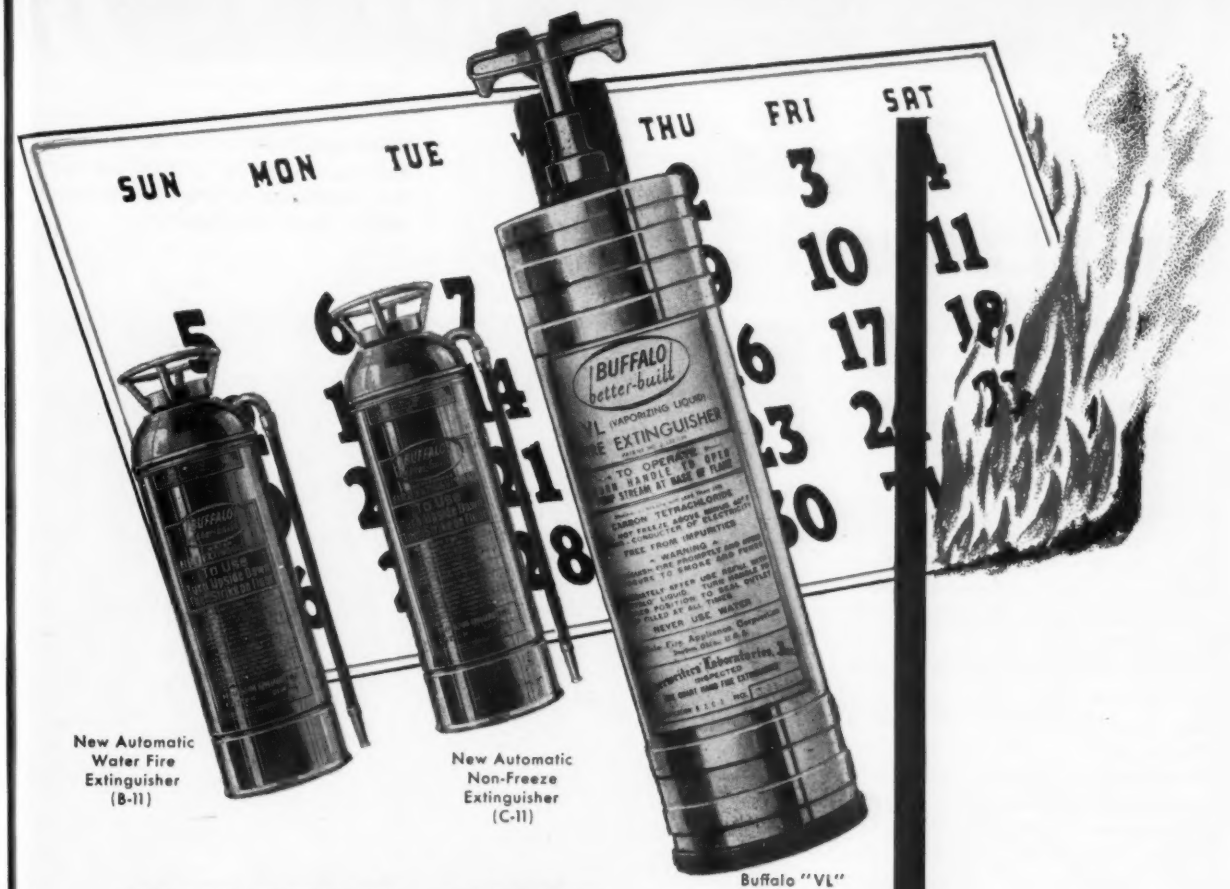


FIRE DOORS

See that they operate and are not blocked or obstructed.

HOUSEKEEPING

Routine good housekeeping for plant fire protection purposes can be maintained by regular periodic inspections of control valves, sprinklers, hydrants and other protection equipment to assure that it is in place and in good order. Check your fire protection system to see whether it meets with these National Fire Protection Association suggestions.



BUY THEM TODAY

TO STOP TOMORROW'S FIRE

● With fire losses mounting and replacement costs up, it's time to double-check your fire fighting equipment.

Is *every* vital location covered with the *right* type of extinguisher? Is every extinguisher freshly charged . . . ready for instant action?

Our representative in your locality has new stocks of Buffalo *better-built* Fire Extinguishers . . . a type and size for every fire hazard.

BUFFALO better-built

FIRE EXTINGUISHERS

ESTABLISHED 1895

BUFFALO FIRE APPLIANCE CORPORATION

DAYTON 1, OHIO

Take Static Out of Solvent Storage

Static electricity is one of the more insidious sources of ignition not just in obscure plant fires but also in large solvent-vapor explosions.

THE storing of solvents in and around an industrial area can take years off of a plant fire protection official's life. Despite the most elaborate precautions involving a careful system of cross-checking, stock-reporting and safe housekeeping in general, just one workman with dry skin can build up a charge of static electricity one fine dry day sufficient to ignite a pocket of loose solvent vapor and so destroy an entire building.

Static electricity commonly results from friction or rubbing, but it can also be generated by alternately bringing together and separating unlike substances. Among the many agencies that generate static charges and thus can be responsible for exploding vapors, the following are most common but often least suspected:

1. Transmission machinery.
2. Mixing, grinding, screening and similar friction processes.
3. Coating, spreading, impregnating, polishing and similar rubbing operations.
4. Rubbing of clothing or even dry air against the skin of certain individuals.
5. Continuous flow of dry gases, dusts, or even petroleum products in pipe lines.

Humidity Important

A relative humidity of 60% in the workroom is generally considered fire-safe despite the presence of static charges. Moist air tends to ground off the built-up electricity. Ideally, 75% humidity is desirable, if the extra dampness can be maintained without undue hardship to workmen.

The only other solution for dissipating static charges is to individually ground off all equipment, all static electricity sources, regardless of dampness or dryness factors. Permanent metallic conductors connected to a pipe of the plant water system are usually effective. After every installation, test the system for electrical resistance. To be sure effectiveness is not undermined by corrosion, mechanical injury or loosened connections, test the system at frequent intervals.

Good housekeeping fire prevention practice requires that solvent storage rooms containing combustible liquids, paint mixing, grinding and screening machines as well as electric motors have ground connections to eliminate the possibility of fire and explosions due to static electricity.

Transmission belts represent a more difficult problem. A substitution of direct drives or enclosed gears or chains is the best remedy for static, but if belts must be used, they should be grounded with metallic tooth combs of a flexible conductor. Pulleys should be metal and all shafting should be grounded separately, either with carbon or spring bronze brushes directly contacting the shafting. Grounds installed on hangers or bearing blocks are usually hampered by the insulating properties of lubricating oils.

In handling workmen, a good practice is to provide a good conductive floor material in hazardous areas and to supply the workers with conductive shoes, chemically treated for the removal of static. An alternate method requires workers to step on a grounded copper plate before they enter departments considered exposed to vapors from solvents, such as solvent storage rooms. Static built up by trucks, etc., moving between departments can be removed by the use of conductive rubber tires. Conductive filling hoses should be used with the flammable liquids.

Solvents are usually highly flammable liquids having flash points under 70° C. Included are such vaporous substances as benzol, gasoline, naphtha, alcohol, cleaning and polishing solutions, little-known rubber solvents and hundreds of thinners for paints, varnishes and lacquers. Highly volatile solvents are used in the manufacture of thousands of synthetic products, from nitro-cellulose films to pyroxylin plastics, with the finished material frequently being as much a fire hazard as the solvent itself. Paint and lacquer spraying, dip-coating, flow applications, and oven-drying are all common solvent-hazardous processes the vapors from which are usually safely exhausted away because of their potential toxicity. This precaution taken for health reasons eliminates concentrations before they become explosion hazards.

Storage Neglected

It is in the *storage* of these same materials, however, that sufficient precautions are unfortunately not taken. The filled drums need be watched for overexpansion in hot weather, but the partially filled vessels or the so-called "empties" are the most dangerous. A residue of two teaspoons of gasoline in a closed 55-gallon drum can wreck the drum with an explosion that needs only a spark from static electricity for ignition.

Closed Systems

In closed systems, removal of oxygen or air will prevent explosive mixture of vapors. This can be done by substituting an inert atmosphere of carbon dioxide or even boiler stack gases that contain less than 6% oxygen. A partially filled closed container can be made free of dangerous air mixtures by introducing dry ice to the liquid, the released carbon dioxide creating an inert atmosphere in the receptacle.

An inexpensive neon tube tester makes a satisfactory portable instrument for locating static charges. One of the leads is touched with the hand and the other lead is brought close to the equipment being inspected. The neon will glow if a static charge is present. The test should be made after explosive dusts or vapors have been removed from the room, as sparks will jump across to the lead of the tester if a charge is present.

✓ GOOD HOUSEKEEPING CHECK LIST FOR CONTROLLING DUST EXPLOSIONS

How good is your anti-explosion program? Good housekeeping is vital in workroom areas where operations involving dust generating processes are performed. Here are 25 recommendations to check which will assist inspectors in eliminating dust accumulations responsible for explosions.

DUST explosions usually originate from a small amount of dust in suspension in the air coming in contact with an ignition source. The pressure wave resulting from the explosion may be sufficient to dislodge accumulated dust from ledges and equipment to produce large secondary explosions. Under these conditions it is of first imporance that maintenance personnel know exactly what preventive measures to follow and which safeguards will minimize fires and explosions—hence, the ever-present necessity for good plant housekeeping.

PREVENTING RELEASE OF DUST INTO WORKROOM ATMOSPHERE

Do You Provide For —

- ☐ Effective exhaust ventilation at point of origin of dust?
- ☐ Enclosure of processing equipment?
- ☐ Bin vents to permit dust-laden air to escape?
- ☐ Individual rotary valves or feeders or choke sections in the conveyor or spout from each grinder or crusher which discharges into a conveyor or spout?
- ☐ Elevator enclosures with dust-tight casings which extend through the roof?

PREVENTING IGNITION OF DUST IN WORKROOM AREA

Do You —

- ☐ Ban smoking, lighting or carrying of matches, cigaret lighters or other flame-prdoucing articles?
- ☐ Prohibit use of open flames, such as lanterns, gas jets, oil lamps, torches or candles? (Boilers, furnace or dryers with open flames should not be installed in those portions of the plant where dust may be present.)
- ☐ Ground conveyor belts, metal spouts, drive belts and other equipment for the removal of static charges?
- ☐ Use approved motors which will not produce sparks or become overheated?
- ☐ Prohibit the use of extension cords in bins or other confined areas where an explosive dust concentration may exist?
- ☐ Use only safety battery-type lamps or flash lights in these areas?
- ☐ Enforce inspection and frequent lubrication of bearings to prevent overheating? (Where ball or roller bearings are not used, it is advisable to install bearings of the self-oiling type.)
- ☐ See that drive belts are not permitted to rub against each other? (The heat produced by friction may constitute an ignition source.)
- ☐ Use screens or magnetic separators on grinding mills and crushers for the removal of foreign material?
- ☐ Have incandescent electric lamp lighting installed in accordance with requirements of the National Electric Code? (Vapor proof globes, keyless sockets and wiring in conduits should be provided in dust areas.)

SAFEGUARDS TO MINIMIZE DAMAGE FROM FIRE OR EXPLOSION

Have You —

- ☐ Separated hazardous areas within a building from other areas by pressure-resistant fire walls? (All doors should be automatic fire-door type. Floor openings should be avoided, and all openings for pipes and ducts should be carefully sealed.)
- ☐ Prevented dust accumulation with a minimum of ledges, and with walls and floors that are smooth and easy to clean? (Ledges, window sills, beams and other surfaces that are horizontal or nearly so can be covered with inverted trough-like caps built at an angle of 45 degrees for the purpose of shedding dust.)
- ☐ Installed hinged windows and panels, or scored window panes, used for relieving explosion pressure? (All buildings should be so constructed that in case of explosion, the pressure will be vented to the outside with the minimum of damage to the structure.)
- ☐ Installed suitable fire extinguisher equipment such as small hose, water pails, soda-acid extinguishers and hand operated water pump tanks? (Small hose that throws fine spray is better for dust fires as it is not likely to stir up accumulated dust.)

AUXILIARY HAZARDS USUALLY OVERLOOKED IN DUST AREAS

Do You Guard Against —

- ☐ Lack of proper ventilation, to prevent the formation of explosive concentrations of flammable dust in the workroom atmosphere?
- ☐ Accumulations of rubbish in the dust area?
- ☐ Smoking in washrooms near areas where dust is present or likely to be present?
- ☐ The use of portable electric lights in confined spaces? (Unless of approved type and carefully maintained, these lamps present a real hazard. Lamps, even of the approved type, should not be used in a confined space, such as tanks or bins where dangerous concentrations of dust may exist.)
- ☐ The lack of proper fire fighting equipment?
- ☐ Build-up of dangerous static charges in adjacent workrooms?
- ☐ Ignorance on the part of working personnel of the hazards involved in dust area operations? (Overcome this by proper educational meetings.)

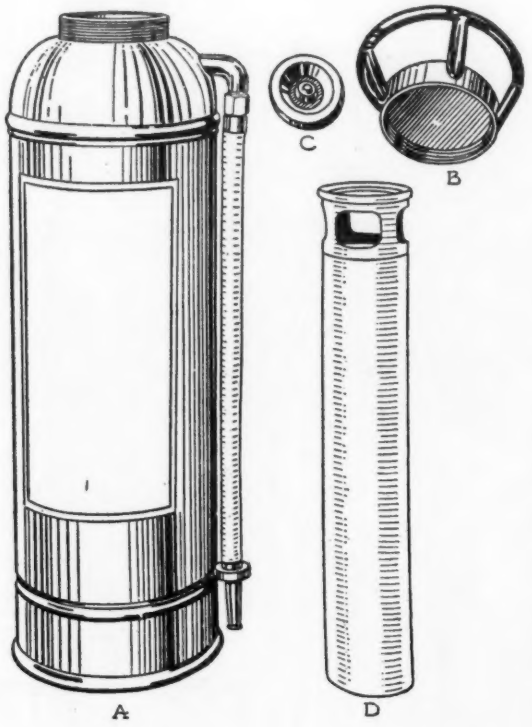
HAND FOAM EXTINGUISHERS

(1¼ - 1½ - 2½ and 5 Gallons)

This handy chart (one of a series) summarizes the essential facts of maintenance of FOAM EXTINGUISHERS and furnishes a quick reference for inspection techniques. Modification should be made of information contained herein to conform with individual manufacturers' instructions usually found on exterior of extinguishers.

WHEN adequate maintenance is provided for extinguishers, savings are effected that help accomplish the maximum of fire extinguishment in the minimum of time and cost. A careful extinguisher maintenance program should include periodic extinguisher unit inspection, regular scheduled recharging service. Records, dates and information on the inspections, discharges, rechargings and materials used should be kept.

What To Check	WHAT TO DO
(A) Extinguisher Body	Examine chamber thoroughly for any signs of deterioration. Wash and scrub inside of shell with clean water after each inspection preparatory to recharge. Recharging should be done under capable supervision. Sodium bicarbonate and foam stabilizing agent supplied by extinguisher manufacturer should be thoroughly dissolved in luke warm water outside of the extinguisher body in strict accordance with instructions on the charging unit before refilling chamber to designated filling mark. Nozzle and thread connections on ring top neck should be checked and cleaned of any accumulations or corrosions. Record recharging date on tag.
Hose Attachment & Nozzle	Examine hose and its connections for deterioration or injuries due to misuse or corrosion. Remove all encrustments or stains caused by acid by scrubbing hose with clean water. Replace hose if cracked and not in usable condition. See that orifices of nozzle are not clogged. Flush a stream of clean water through hose and nozzle. Replace nozzle with new one if not in working order.
(B) Ring Top or Cap	Check ring top threaded connections for wear or corrosion. Check gasket for wear and secure seat. Replace with new gasket if loose or worn by corrosion.
(C) Inner Container (D) & Head Stopple	On recharging inner container, ingredients should be replaced with exact duplicate of those originally provided with extinguisher, otherwise the discharge may be impaired or extinguisher rendered inoperative. To recharge container it should first be washed clean and then filled with aluminum sulphate dissolved in water in exact accordance with manufacturer's instructions. Corresponding head stopple should be washed clean and replaced in its proper place at the head of inner container. Do not use non-freeze solutions as they will impair effectiveness of operation.



The foam type extinguisher provides a quenching medium by forming a smothering blanket which possesses a certain permanence. This extinguisher is very similar to the soda-acid type, one difference being the addition of a forming ingredient to the sodium bicarbonate solution. The chemicals used are bicarbonate of soda and a foam stabilizing agent dissolved in water for the outer compartment, and aluminum sulphate solution dissolved in water for the inner solution. When the extinguisher is inverted a mixture of chemicals is produced and a pressure is created within the container which expels a stream of foam through the hose. Foam extinguishers are not recommended for use on fires in alcohol, acetone or lacquer thinner, and should never be used to combat electrical fires since foam is a conductor of electricity.

WHEN	WHY
Each Month	The 1¼, 1½ and 2½ gallon extinguishers are usually hung on brackets or shelves not more than 5 feet above floor, and not more than 3½ feet for 5 gallon devices for easy accessibility. A routine check at monthly intervals will make certain that each extinguisher has not been tampered with or removed from its designated place.
Several Times A Year	At company prescribed intervals a general inspection should be made to detect any injuries to the extinguisher; to see that they are not empty or that the nozzle orifice is not clogged. Check for proper tagging, date and signature of last recharge to assure proper record of maintenance. Check location and supply of chemical charges for on-the-spot recharging if distinguishers are found empty. Instructions to employees should be given in order that through familiarity they may become adept at handling the extinguisher in case of fire. These instructions should be supplemented with frequent demonstrations.
At Least Once a Year	All foam extinguishers must be recharged at least once a year or after each use in order to provide new extinguishing pressure for subsequent use. Before emptying and recharging, the extinguisher and all of its parts should be examined (including gasket and hose) for signs of deterioration or injuries due to misuse, and the orifices of the hose nozzle examined to see that they are not clogged. Extinguishers or parts which are not in good condition should be replaced with those which will perform with the maximum efficiency. It is important that the inner chemical solution and container and head stopple when replaced should be exact duplicates of those originally provided, as otherwise the discharge may be impaired. At these annual inspections, all extinguishers should be emptied and recharged. Recharging should be done under capable supervision and date of recharging and signature of person performing operation recorded on tag attached to each extinguisher to indicate operable condition and furnish source of reference in case of investigation

(Other handy bulletins covering first aid fire appliances will appear from time to time in the Fire Prevention for Industry Section. Watch for them. Clip and use for instant reference in your industrial fire prevention notebook.)

THE MASTER OF FLAME
ANSUL
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FIRE EXTINGUISHING EQUIPMENT
duGas

DRY CHEMICAL FIRE EXTINGUISHERS

WRITE TODAY FOR CHARTS SHOWING COMPARATIVE RATINGS ON FLAMMABLE LIQUID FIRES AS DETERMINED BY NATIONALLY RECOGNIZED APPROVAL AGENCY.

Highest Ratings for Speed and Effectiveness

WITH THE NEW ANSUL-DUGAS DRY CHEMICAL FIRE EXTINGUISHER

Speedy-fast action is the first essential in preventing major fire damage. The NEW Ansul-Dugas Extinguishers, for Class B and C fires have the highest ratings for SPEED and EFFECTIVENESS, pound for pound, as determined by impartial authority. These highest ratings mean positive put-out of your incipient fires by ANY of your employees.

STOP FIRE FASTER!

with Ansul-Dugas Dry Chemical Extinguisher

FEATURES OF THE NEW ANSUL-DUGAS EXTINGUISHER

- Greatly increased fire-killing power.
- Expert extinguishing by inexperienced operators.
- Simplified—faster operation.
- Quicker, easier, on-the-spot recharge after use.
- Greater fire-fighting effectiveness, pound for pound, dollar for dollar.
- Longer range stream and greater shielding of heat from operator.
- Increased fire-fighting capacity without increased weight.
- Engineered to resist corrosion.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

Other handy bulletins covering first aid fire appliances will appear from time to time in the Fire Prevention for Industry Section. Watch for them. Clip and use for instant reference in your industrial fire prevention notebook.)

of inner container. Do not use non-freeze solutions as they will impair effectiveness of operation.

tached to each extinguisher to indicate operable condition and furnish source of reference in case of investigation

Fire Protection FOR INDUSTRY

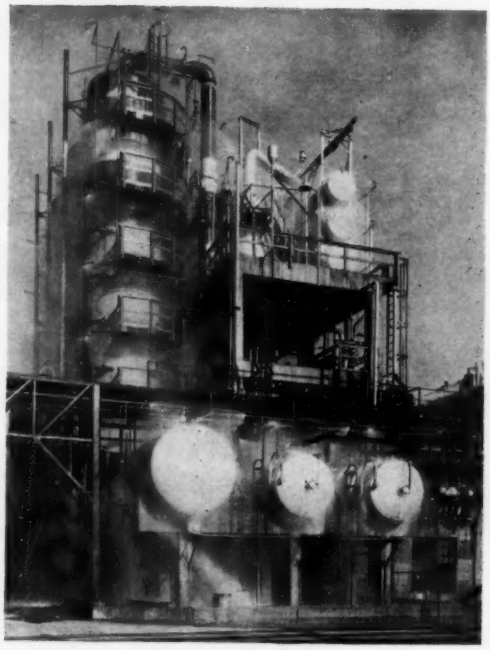
WATER-FOG for BUTADIENE STORAGE

A unique automatic water-fog fire protection device completely covers fire hazards of volatile butadiene gas used in the manufacture of synthetic rubber at the Goodyear-operated Rubber Reserve Plant, Akron Ohio.

GIVEN top rating by some of the nation's leading authorities on control and prevention of industrial fires, the water-fog method of safeguarding butadiene is believed to be the last word in minimizing fire hazards ordinarily associated with processing and storage of this highly volatile gas. The system now in use was developed over a long period of careful research at an elaborate testing grounds established at Baytown, Texas. It is not only designed for immediate reaction against any threat or actual outbreak of fire, but also detects and gives warning of escaping butadiene.

All butadiene used at the Akron Rubber Reserve unit is stored and circulated under water, thereby eliminating much of the fire hazard. The butadiene (received at the plant in liquid form) is circulated in pipe lines through a series of canals and large storage reservoirs extending over nearly three acres.

Another outstanding highlight is that the fire equipment consists of a completely automatic waterfog system, highly sensitive to heat. Waterfog units comprise a multitude of special orifices extending throughout the entire area of butadiene processing. These are particularly concentrated around each reservoir where the gas is stored.



Stripping column used to purify styrene gas in the manufacture of synthetic rubber at the Goodyear-operated Rubber Reserve Corporation plant in Akron, Ohio. Waterfog system is shown in operation.

USE ONLY THIS
SAFETY-APPROVED
CAN FOR FLAMMABLE LIQUIDS—
IT'S **JUSTRITE**

Safety Gasoline Can

Avoid risks by using Justrite Safety Gasoline Cans for handling and storing flammable liquids. They're perfect for this purpose—and they're approved for safety by Underwriters' Laboratories, Inc., and by Associated Factory Mutual Fire Insurance Companies.

Justrite Safety Gasoline Cans are sturdily constructed of heavily coated 24-gauge steel, double seamed and soldered, with high-gloss, red enamel finish. Non-spill pouring lip. 7 sizes from 1 pt. to 5 gal. Get protection—economical, sure protection—with the Justrite Safety Can!

See your supplier—today!

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When Breathing Stops!

be ready with the

EMERSON RESUSCITATOR

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Write for Literature or a Demonstration.

Leading industrial fire departments and first aid crews are depending more and more on this combination of automatic breathing machine, aspirator and inhalator to save lives for them in all asphyxial emergencies.

J. H. EMERSON COMPANY
Representatives in principal cities.
23 COTTAGE PARK AVE. CAMBRIDGE, MASS.

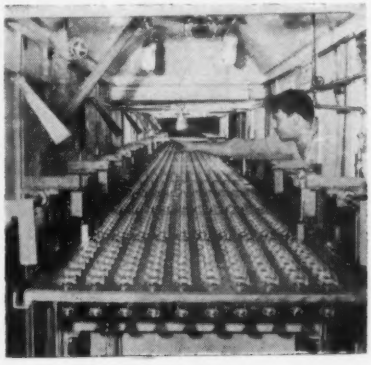
The waterfog orifices extend through 15 individual units, electrically synchronized so that they will operate either simultaneously, or in series. The units in turn are operated by centrally located valves. These are automatic, and can be manually controlled. The valves are dependent upon a connected air line with an air pressure maintained at one pound.

Heat actuator devices, working in conjunction with the air line, are placed at frequent locations. The actuators are designed to react instantly to any increase in temperature. Presence of fire affects the heat actuators and raises the air pressure. This results in the expansion of air in the line and reflects upon the control valve, so that the latter releases waterfog units surrounding the fire. The water comes on within five-tenths seconds after the time warning is given of increased heat. The rated water output capacity system is 5,000 gallons per minute.

An automatic combustible gas detecting unit operates in connection with the waterfog units. This appliance is designed to carry on a constant sampling of air. It analyzes for concentrations of butadiene which might be present as a result of possible leaks in process lines.

Concentration of this gas above 60 per cent of its lower explosive limit will sound an alarm. It indicates by flasher lights location of the leak. If the gas concentration rises higher, resulting vapor will be ignited by an automatic spark. The increase in temperature affects the heat actuators so that the waterfog units are released, emitting columns of water which completely envelope the fires. This activity of course instantly divulges sources of the leak, so that repairs to the gas line can be made.

AUTOMATIC EXTINGUISHING SYSTEM . . . A new automatic Kidde fire extinguishing system now protects lacquering processes at the Wabash Photoflash Corp., Brooklyn, N. Y. Six carbon dioxide discharge nozzles are directed beneath the bulbs at the collecting tank and if fire



breaks out, the heat detector (at top, circled) quickly sets the system in operation, releasing 100 pounds of carbon dioxide to smother flames.

PRESIDENT'S CONFERENCE . . . Faced with an average annual toll of 10,000 deaths from fire, together with property loss which exceeded $560,000,000 in 1946, President Truman is sponsoring a nation-wide Conference on Fire Prevention.

More than 2,000 delegates are expected to attend the meeting, which will be held May 6-8 in Washington, D. C. Representatives from federal departments, state, county and municipal governments and business and civic organizations with a basic interest in the fire prevention problems, will be present. Committees will be appointed to make advance studies of special aspects of the fire prevention problem, including enforcement, law revision, building codes, inspection, fire-fighting education and publicity.

STOP FIRES
before they start!
Shield of Safety identifies PROTECTOSEAL Since 1913
PROTECTOSEAL*
PLUNGER CAN . . . provides safe — speedy way of dispensing flammable liquids . . . steps-up production and economizes solvents. A boon to all cleaning and swabbing operations. Available in 5 sizes . . . F.M. approved.
* PROTECTOSEAL — a method of safeguarding your plant against destruction — loss of life, property, and profits. Write for catalog covering many other devices safety-engineered to stop fires before they start.
THE PROTECTOSEAL CO., 1970 S. WESTERN AVE., CHICAGO 8, ILL.

For further information on any of these products, simply list the key number at the foot of each item on the special post card enclosed with this issue.

PROTECTIVE BOTTLE CARRIER—United States Rubber Company announces a fabric cloth protective bottle carrier that is claimed to aid in prevention of accidents and burns in industrial plants and laboratories. Lightweight and shockproof, the product is designed to carry glass bottles containing such liquids as acids, caustics, dyes, stains, inks, etc. **NP 105**

SAFETY LATCHER—For closing and locking latch-type drop-bottom railroad cars, the Industrial Products Co., Philadelphia, has developed an "L"-shaped handy tool of bar steel with a link and hook on one end which it claims makes dangerous bars and levers obsolete. Called a "Railroad Speed-up Safety Tool," it is said to save time and prevent injuries in drop-bottom car handling. **NP 106**

PORTABLE DUST COLLECTOR—A dust collector involving a new principle has been introduced by the Dust Filter Company of Chicago. Unlike most tubular units which depend solely upon filter tubes to separate the dust from the air, this portable unit is claimed to cause separation of a high percentage of the dust at the point of intake.

A baffle plate arranged beneath the filter tubes causes a rotation of air and dust in a cyclone manner into the retaining pen at the bottom of the unit resulting in a deposit of the dust at that point before it has an opportunity to reach the filter tubes. **NP 107**

EXTRA-SAFE CHAIN—A 60-degree twist to connecting links in a new magnet chain announced by the S. G. Taylor Chain Co., Hammond, Ind., serves to keep the links of the legs perpendicular to each other and thereby reduces wear caused from gouging and kinking.

The extra-safety feature is reported built into a special alloy steel which provides resistance to shock, grain growth and work hardness eliminating the need of periodic heat-treatment. **NP 108**

RESPIRATOR — Scott Aviation Corporation announces a new industrial respirator, providing to industry the advantage of "demand" respiration for a multitude of uses in dusty, objectionable or harmful atmospheres. The respriator is said to use only ⅛ the volume of air required by constant flow airline respirators and claims are that it eliminates the steady and irritating flow of air over the face. **NP 109**

SELF-LOCKING HOOK—A simple self-locking device that may be adapted to hooks as an additional safety precaution is offered to industry by W. H. Foster, Los Angeles. This self-locking hook is said to make a positive yet releasable connection between cables used in hoisting equipment. It is recommended also for safety belts utilized by firemen and workers engaged in a wide variety of erection, hoisting, drilling and coupling operations.

The device has a fulcrumed latch finder that closes the opening into the hook and is retained in this closed position so that it cannot be accidentally swung inward and opened. **NP 110**

TRAILER DUMP TRUCK — New design and construction improvements which have been incorporated into "Phil-Dump" trailer trucks has been announced by Phillips Mine and Mill Supply Company, Pittsburgh. The one cubic yard capacity trailer is completely equipped with pneumatic tires and Timken bearings.

Strains which result in occupational disabilities are claimed to be eased by improved handling, haulage and dumping facility of scrap, castings, sand, etc. **NP 111**

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HAZARDS

PROVED IN A WIDE VARIETY OF APPLICATIONS

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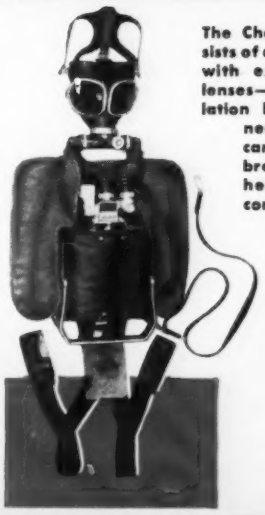
M·S·A
TRADE MARK REGISTERED
Chemox
SELF-GENERATING

OXYGEN BREATHING APPARATUS

Many months of use in major industries and fire fighting services have confirmed CHEMOX' wartime performance verdict . . . the simplest, lightest—only 13½ lbs., easiest-to-use oxygen breathing apparatus ever developed, and *the only apparatus generating its own oxygen for breathing in a replaceable chemical canister.*

The U. S. Bureau of Mines-approved Chemox Apparatus belongs in *your* plant safety picture! Chemox gives *complete* respiratory protection in atmospheres containing toxic gases, oxygen deficiency, or both—for forty-five minutes at hard work. See it for yourself in a readily-arranged demonstration, and meanwhile, write for Bulletin BM-14!



The Chemox Apparatus consists of an All-Vision facepiece with extra-large contoured lenses—exhalation and inhalation breathing tubes connecting to the Chemox canister—a tough, sturdy breathing bag made of heavy Neoprene—and comfortable harness designed for maximum wearing ease.

The complete assembly is simple to put on, quickly adjusted, and easy to wear.

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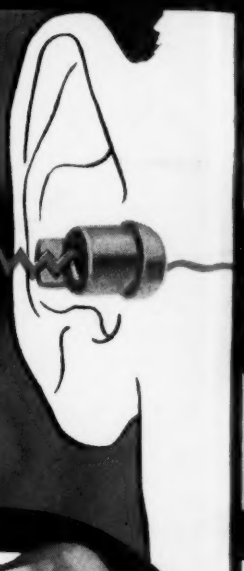
Reduce harmful NOISE and Increase Production!



M·S·A Ear Defenders

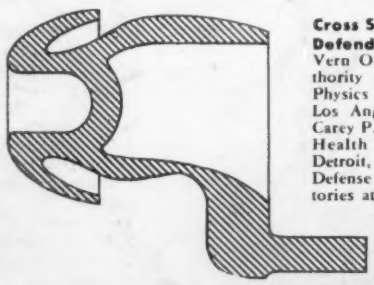
SMALL · LIGHT · COMFORTABLE

Scientifically Designed to Filter Distracting Noise—

—yet speech is readily heard!

Loud noises are harmful—irritate nerves—cause fatigue—reduce efficiency. *Protect* your workers and gain in production output by reducing noises *at the ear level* with M.S.A. Ear Defenders!

M.S.A. Ear Defenders absorb loud sounds, reducing them to a fraction of their original intensity, yet permit transmission of speech due to unique acoustical design. Proved throughout industry, and by hundreds of thousands of users in our Navy during the war, M.S.A. Ear Defenders are soft, flexible, easy to keep clean with soap and water, and are supplied in a sturdy, spring-hinged plastic carrying case.



Cross Section of the M.S.A. Ear Defender. Based on studies by Dr. Vern O. Knudsen, a recognized authority on acoustics, Professor of Physics at University of California at Los Angeles, cooperating with Dr. Carey P. McCord, M.D., of Industrial Health Conservancy Laboratories, Detroit, Michigan, and National Defense Research Council Laboratories at Harvard University.

FOR BETTER EAR COMFORT ON THESE AND OTHER NOISY JOBS!

- Punch Presses
- Drop Hammers
- Hydraulic Presses
- Automatic Riveters
- High Speed Grinders
- Pneumatic Tools
- Screw Machines
- Wood Planers and Saws

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